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FORMERLY

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WHOLE No. 3192

NEW YORK, SATURDAY, MAY 10, 1919

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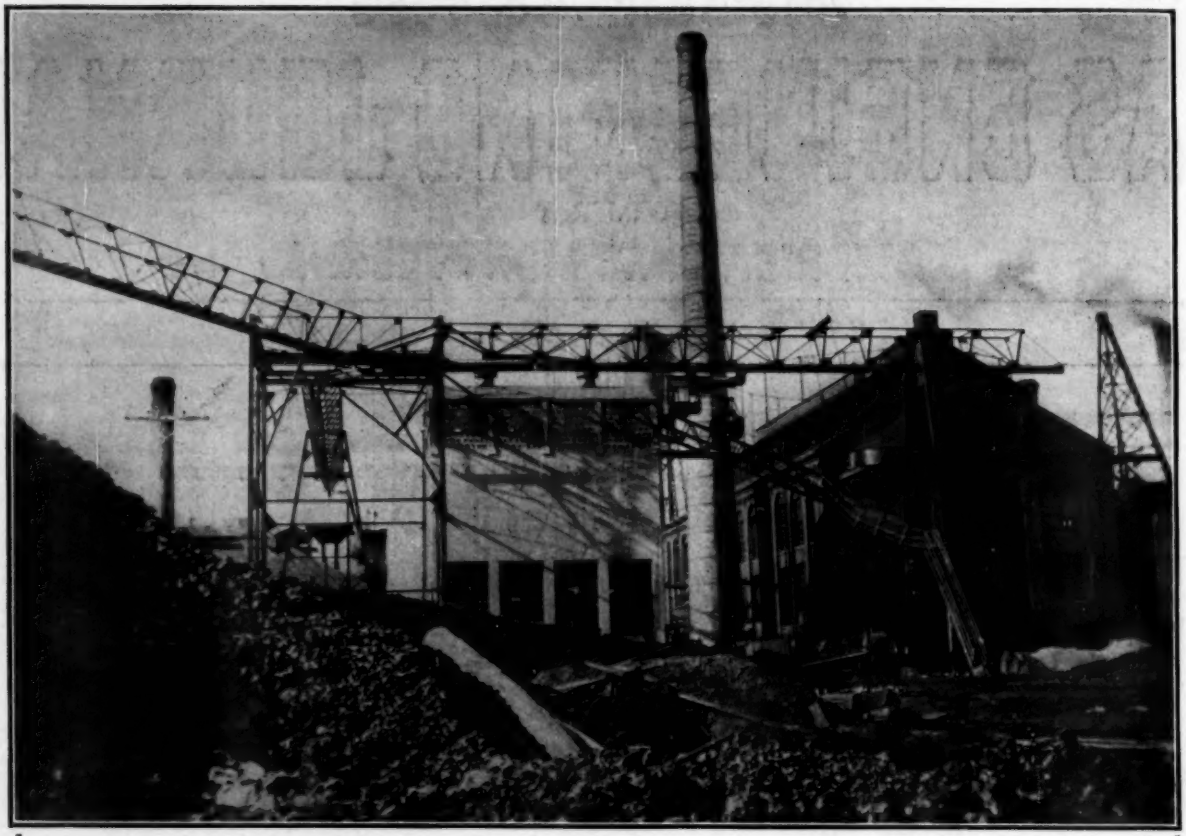

CONCRETE BUNKER AND TELPHER RUNWAY AT THE COKE HANDLING PLANT OF THE LYNN GAS AND ELECTRIC COMPANY, LYNN, MASS.

Handling Coke with the Least Breakage

Because it is easily broken coke must be handled carefully.

Because it is abrasive coke must be handled in a machine designed to move it with the least wear and tear on the machinery.

We have designed and are designing equipment to care for these conditions. If you are interested you should have our engineers submit a design and cost-saving information.

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American
Gas Engineering Journal

FORMERLY THE AMERICAN GAS LIGHT JOURNAL

Vol. CX, No. 19 NEW YORK, MAY 10, 1919 Whole No. 3192

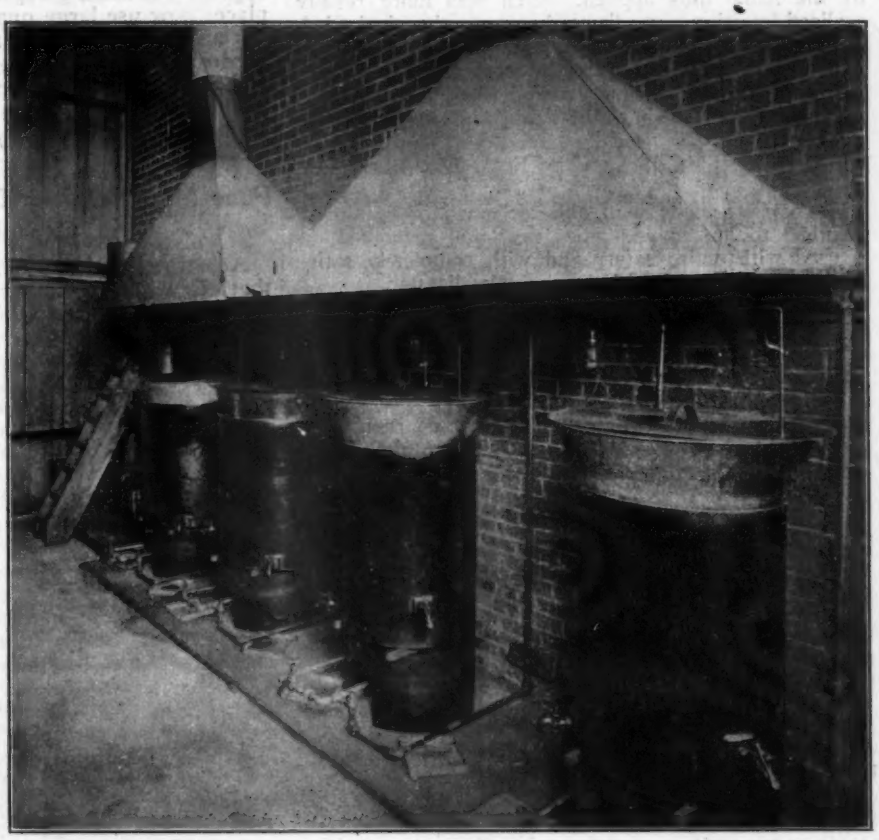
Gas Burners Underneath and a Gas-Flame Torch Playing on the Agitated Mixture from Above Reclaims $12,000 Worth of Contaminated Lubricating Oil

Midwest Engine Company, Manufacturing Gasoline Engines for Submarine Chasers, Armored Tractors, Self-Propelled Gun Carriages and Diesel Engines for Submarines, Cargo Boats and Stationary Use, Solves Its Lubricating Oil Supply Problem to a Large Extent at Home

Artificial gas has played an important part in the carrying out of a unique plan for the reclamation of lubricating oil taken from the tests of internal combustion engines manufactured during the war by the Midwest Engine Company, of Indianapolis, Ind.

The Midwest Engine Company made immense quantities of gasoline engines for submarine chasers, armored tractors and self-propelled gun carriages, and Diesel engines for submarines, cargo boats and stationary use. These engines were closely built, were subjected to long and hard endurance runs at full power, and the quality of the lubricating oil used in test was a most important item.

Lubricating oil sold at high prices and the amount used per engine would be unusually costly if the oil could not be reclaimed and re-used without risk to the product or production.



IN THESE TANKS A CONSIDERABLE QUANTITY OF INDISPENSABLE OIL WAS RECLAIMED AT PRACTICAL COST

SEVERAL HUNDRED BARRELS RECLAIMED

Several hundred barrels of high-priced lubricating

oils, contaminated by carbon, gasoline, water, metal filings and chips from machining and miscellaneous dirt, accumulated unusable in that state because filters failed to clean sufficiently for safe use and because there were no means available to separate water and lighter oils from the lubricating oil.

This oil was salvaged in a reclaiming plant (a refinery on a small scale), which used gas for fuel.

The oil was collected in barrels and permitted to set as long as possible to deposit by gravity the grit and foreign matter.

It was then drawn off down to the settlings and placed in reclaiming tanks, over gas burners and the water and lighter oils driven off. This heating in the reclaiming tanks agitated the oil, made it lighter, and therefore produced a rapid separation of the carbon, grit, chips and other foreign matter held in suspension and not separated previously by gravity.

Playing a Gas Flame on Top of Boiling Oil

A critical point in the process was the boiling and agitating of the oil in the tanks, which, if unrestraned, would have overflowed the oil with possible loss in material and risk from fire by its coming in contact with the burners under the tanks.

When the oil, at irregular moments, reached this agitated condition, it was kept under control by playing a gas flame from a torch on the top of the oil. There was a good deal of "knack" required in the handling of the flame thus applied, which was more readily realized by using a gas flame than any other fuel tried.

Thousands of gallons of valuable lubricating oil were reclaimed by this interesting process at an estimated saving of $12,000, during a period when such reclamation meant a clear gain to the world's oil supply.

Process Entirely Free From Disaster

A complete analysis of the reclaimed oil is almost identical to its analysis when new and reclaimed oil is used with entire safety and with completely satisfactory results, and without a single disaster.

The process of reclamation started and practically finished with the use of artificial gas and in the development of the process no other fuel was found so convenient and safe.

In fact, gas seemed to be necessary to the success of the process in its easy manipulation and regulation under the tanks, and in the vital trick of quieting the agitated oil at a time critical to the separation of its various impurities.

Elimination of Radiation Losses in Boiling Large Quantities of Water by Gas

I wish to call particular attention to the internal method of boiling large quantities of water, caustic soda solution, etc., credit for which belongs, I believe, to a Chicago industrial gas engineer, declared J. Weaver Smith in a paper at the Indiana Gas Association convention. This method has a very simple construction and produces an efficiency in the neighborhood of 95 per cent, which is far greater than any other method. It consists of placing a zigzag coil of black iron pipe, ells and street ells on the bottom and inside of the tank, one end passing through the side of the tank in a horizontal position and secured by means of locknuts and suitable packing. The other end of the coil comes up in a corner to a point a few inches above the top of the tank. About one-half to three-quarters of an inch from the lower end of the coil and in a line with it, and pointing directly into it, is placed a suitable blast burner. This burner is connected by means of suitable cock and mixing tee to the air and gas supply, air being supplied by positive pressure blower. The flame from the burner goes directly into the coil and the heat from it is dissipated through the coil into the liquid to be heated, the stack loss being very low due to the maximum amount of heating surface and practically no loss from radiation. In one installation here in this city we were able to boil 68 gal., or 566 lb., of caustic soda solution in about fifty-eight minutes with a gas consumption of about 155 cu. ft. Before making this installation it required from two to three hours with a gas consumption more than double to do the same work by means of pipe burners underneath the tank.

Another good feature about this method is the low cost of installation. The one just referred to cost the consumer less than $20, not including the tank or blower, both of which he already had. However, a tank of approximately the same size can be built by any sheet-metal worker for less than $20 and a suitable blower would cost about $35, making a total of $75 as against approximately $150 for a tank equipped with pipe burners as furnished by one of the industrial appliance manufacturers. This low cost is very appealing to small garages, manufacturers, etc. These places now use large quantities of gasoline in cleaning up parts of engines, machinery, steel parts to be hardened, articles to be japanned or enameled, etc., and this is not only exceedingly dangerous as a fire hazard but is also very expensive. There is an unlimited field for installations of this type.

Four Men Per Day Operate 450,000 Cu. Ft. Capacity Plant

Apparatus of the automatic or semi-automatic type that eliminates as far as possible the personal element, particularly in the generating of gas, gives better results in costs per thousand, declared J. C. Grey at the Indiana Gas Association convention. Labor-saving devices, wagon and car loaders, auto trucks, conveyors, automatic stockers, trenching and calking machinery can be installed and the saving made.

A complete coal-gas plant was recently erected at Fond du Lac, Wis., with a capacity of 450,000 cu. ft. of gas per day. This plant is equipped with all the latest and improved types of labor-saving machinery, and requires only two men per shift or four men per day to operate same. The usual coal-gas plant in use to-day in Indiana, of this size, requires twelve men per shift, or twenty-four men per day based on twelve-hour working days. These plants, on the above basis, cost to operate per day, at the prevailing wages, $19.20 and $115.20 respectively, and the labor costs per 1,000 cu. ft. of gas are 4.26 and 25.6 cents. There are, of course, returns on the added investment to be considered and cost of power and maintenance, but when one stops to consider the differential of over 21 cents per 1,000 cu. ft., the cost of making coal gas in the labor item alone, considerable thought should be given to present-day methods

and plans laid for future improvements. While twelve hours per day was shown above as the basis of comparison, such days are almost a thing of the past and the new order of an eight-hour day is in force in most situations, with added labor costs and doubtful improvement in efficiencies.

While the rate of interest in borrowing money for ordinary business has not increased more than 15 per cent to 20 per cent during the war period, we find that the increase is considerably more for loans to public utilities. Capital cannot be interested in utility investments to-day as it could be three years ago, and the rate of interest on loans to finance improvements and additions to utilities has increased from 20 per cent to 50 per cent. This is due for the most part to the many restrictions that have been placed on public utilities, curtailing the possible return on the investment to the extent that no one is willing to loan money for such purposes without attractive returns.

While interest rates on capital have increased somewhat more than 20 per cent, labor, fuel and materials have increased from 50 per cent to 300 per cent during the same period.

Effect of Various Condensing Systems Upon Quality of Gas

C. S. Heath Gives the Answer to One Feature of the Question as to Why Two Works Operating on Practically the Same Grade of Materials Sometimes Give Radically Different Results

In all industrial undertakings the economic problem is always an essential consideration, no less so in the gas industry than in the manufacture of soap, or paper, or glass, or paint, or in any of the textile industries, declared C. S. Heath in a paper presented at the recent annual convention of the Illinois Gas Association. If the interest on the investment, cost of raw materials, cost of manufacture and the cost of distribution or sale of the products and by-products of any industry are in excess of the revenue obtainable from their sale, it is self-evident that that industry is doomed to failure. It is necessary, then, that each of these items which ultimately influence the cost of the product be given careful and continued consideration. Too much capital should not be invested in the construction of the plant, and yet an added expenditure in construction may mean a much more efficient operation of that plant during the process of manufacture. Will the more efficient operation of the industry economically warrant the increased cost of investment? Or, if not, can we expect one plant to be as efficient as another when they are operated under different conditions? Many volumes could be written upon this one phase of the question in the gas industry alone.

Economy in Gas Oil Consumption

We continually are comparing our efficiency with that of some gas-manufacturing efficiencies in other towns, States or nations. We wish, all of us, to manufacture gas in the most economical manner, to obtain the greatest yield of gas with the highest heat value attainable with the least consumption of raw materials, but there is a myriad of individual important items which influence this yield, such as the quality of the raw materials used, the temperatures carried in the gas-making apparatus, time of contact, etc.

I do not wish to enter upon this phase of the question, but I wish to touch upon a subject which is not entirely under the control of the operating superintendent, a feature of the gas works which will tend to produce better operating efficiencies, especially in economy of gas oil consumption in one plant than can possibly be produced in another by the most able superintendence, given the same quality of raw materials in each case.

What the Results of Three Plants Showed

After making a careful study of the plant efficiencies of five different gas works to determine, if possible, why one usually showed better results than any of the others when operating conditions and quality of raw material seemed as good at one as at the others, I wish to present the results obtained and the conclusions deduced by illustrating three typical cases. These three typical plants will be designated as Gas Works No. 1, Gas Works No. 2 and Gas Works No. 3.

The candlepower of the gas, the heat value of the gas and the light oil recovered from the gas averaged better at Gas Works No. 1 than at Gas Works No. 2, and better at Gas Works No. 2 than at Gas Works No. 3, the basis of the results being per gallon of gas oil per thousand feet of carbureted water gas produced. In conducting several tests upon the gas manufactured at these plants at many different times and under different conditions, it was found that the lighting and heating quality of the gas was quite closely associated with the light oil in the gas. I do not mean to say that the quality of the blue gas, the quantity of methane and the amount of olefines did not affect the gas manufactured, but, rather, that when tests were made at the different gas works, endeavoring as near as possible to maintain a uniform temperature in the checkerbrick of the gas machines, a uniform quality and quantity of steam, uniform height of fires, etc., then the quality of the gas seemed better at that plant whose gas contained the greater percentage of light oil per gallon of gas used. If, then, the No. 1 works shows greater efficiency and more light oil in the gas when operated as nearly in the same manner as No. 2 works as is possible, where is the light oil which should be in the gas at No. 2 works?

The only answer I could consider at the time was that it must be in the tar. Samples of tar were taken from each works sufficiently large to get a good average of the representative tar production. Of each of these 15 gal. were taken for testing purposes, which sample would yield about 1 gal. of light oil, an amount large enough to make several careful analyses of its quality.

The following analyses were made in the ordinary method of dry distillation, which I submit merely to show the quality of the tars as ordinarily reported:

TABLE NO. 1
DRY DISTILLATION—TESTS OF WATER-GAS TAR

Per Cent of Oils in Tar:	Gas Works No. 1	Gas Works No. 2	Gas Works No. 3
Water	1.8	2.0	3.0

Light oils to 170 deg. Cent.....	1.2	2.2	4.5
Heavy oils to 230 deg. Cent.....	23.0	30.8	26.5
"Dead" oils to 270 deg. Cent.....	23.5	11.5	18.0
"Dead" oils to 315 deg. Cent.....	17.0	17.5	13.2
Pitch, residue	33.5	36.0	34.8
Specific gravity	1.067	1.075	1.066
Free carbon	0.60	0.43	0.71

Fourteen gallons of each of these tar samples were then put in a large steam still equipped with closed steam coils to heat the tar up to about 100 deg. Cent. Then live steam was blown through a perforated steam coil, carrying the light oils away from the mass of tar up through a dephlegmating column, then through a condenser and separator to a receiving tank, much in the same manner as benzolized wash oil is debenzolized in light oil stripping plants. In this manner a considerable quantity of a good grade of straw-colored light oil was obtained from the tar samples. The percentage of light oil obtained was as follows:

TABLE NO. 2
LIGHT OIL IN TAR SAMPLES

Gas Works Flow of Gas:	Percentage of Light Oil in Tar
No. 1—From gas machines to eight hot scrubbers (housed) to relief holder to condensers	6.18
No. 2—From gas machines to relief holder to condensers	7.20
No. 3—From gas machines to condensers to relief holder.....	9.62

This light oil was then tested by dry distillation and by exact analysis to determine its quality:

TABLE NO. 3
DRY DISTILLATION TESTS OF LIGHT OILS FROM TAR

Temperature (deg. Cent.):	Gas Works No. 1	Gas Works No. 2	Gas Works No. 3
First drop	101	97	88
95	..	..	2
100	..	1	5
120	8	14	29
150	28	45	60
180	66	73	84
200	90	91	96

TABLE NO. 4
ANALYSIS OF LIGHT OILS IN TAR

Constituents:	Gas Works No. 1	Gas Works No. 2	Gas Works No. 3
Benzol	4.0	9.0	13.1
Toluol	9.6	15.1	20.6
Olefines	11.7	13.7	9.7
Solvent naphtha	35.7	36.0	31.9
Paraffines	0.1	0.2	0.6
Heavy solvent	37.9	25.2	23.5

TABLE NO. 5
PERCENTAGE OF PURE PRODUCTS IN TAR

	Gas Works No. 1	Gas Works No. 2	Gas Works No. 3
Benzol	0.25%	0.65%	1.26%
Toluol	0.59%	1.09%	1.99%
Total	0.84%	1.74%	3.25%

From these results it was found that there was twice as much benzol and toluol in the tar from Works No. 2 as from Works No. 1 and four times as much in the tar from Works No. 3 as Works No. 1. This quality of tar is closely related to the quality of the gas produced at each works; that which produced gas for higher calorific value and higher lighting value contained more benzol and toluol in the gas and relatively less benzol and toluol in the tar.

This relation may be accounted for, I believe, in the difference in the cooling or condensing systems of the gas works.

The gas in No. 1 works left the seal of the gas machine at a temperature of approximately 180 deg. Fahr. and passed through eight hot scrubbers filled with wooden trays. These hot scrubbers were housed in a brick building so that they were also protected from the chilling effects of cold weather. Then the gas passed to the relief holder, and then through seven condensers. The cooling action of the condensers was effective in chilling the gas and condensing excess water vapor, but had little action on the light oil vapors remaining in the gas.

The gas in No. 2 works passed from the machines directly to the relief holder, where considerable cooling took place as the tar condenser; then to six condensers, where the remainder of the tar was removed during the cooling process.

The gas in No. 3 works passed directly from the machines through six condensers, where it was cooled to about 100 deg. Fahr. before passing to the relief holder. Thus, in the third case the gas is suddenly cooled, bringing down the tar as a mist, in which form it will tend to scrub the gas of its light oils, while in the former practice, at No. 1 works, the hot scrubbers removed the tar mechanically by impact with the wooden girds on hurdles rather than by condensation and at a temperature high enough to prevent the condensed tar which runs down the trays from absorbing the light oil from the gas except in very small amounts.

Result of Excessive Amount of Water Passing Through Condensers

Practically, we have all experienced the same effects in the resultant decrease of candle-power and heat value of gas manufactured when an excessive amount of water is passed through the condensers in a small gas works which is not equipped with hot scrubbers. I have noticed at times a drop of 3 candles in the gas or 10 B.t.u. within one hour after excess water was passed through the condenser of a gas works of one-million-a-day capacity. In this case the temperature of the outlet of the condenser was reduced from 110 to 80 deg. Fahr., temperature of inlet being about 175 deg. Fahr.

The same results were experienced, in a much more marked degree, when experimenting with the increased production of toluol by cracking solvent instead of gas oil in a gas machine. The toluol yield from gas oil is slightly under 2 per cent of gas oil consumed, while the toluol yield from solvent naphtha was found to be about 20 per cent of the solvent used; but in one works, where the gas was rapidly cooled, 50 per cent of this toluol was taken out of the gas by the tar, whereas at another plant, with more elaborate cooling systems, very little of the toluol

dropped out in the tar, somewhat less than 10 per cent of the total.

Now, let us consider what effect upon the gas of these two cases, at Gas Works No. 1 and at Gas Works No. 3, that the benzol and toluol found in the tar would have upon the heating value and upon the candlepower. At the time these tests were conducted the production of tar was very near 1 gal. per 1,000 cu. ft. of gas made, slightly higher at Works No. 3 than at Works No. 1. Assuming the tar made in each case to be the same, then the tar at Works No. 1 contains 0.0084 gal. of benzol and toluol and the tar at No. 3 contains 0.0325 gal. of benzol and toluol, and, conversely, the gas at Works No. 1 would be richer in benzol and toluol by 0.0241 gal. per 1,000 cu. ft. of gas than No. 3 works. If the works were equipped with stripping plants and produced 10,000,000 ft. of gas a day, this difference would account for 241 gal. per day, or 7,230 gal. per month, of pure benzol and pure toluol removed from the gas by the tar at one station in excess of the other. This factor alone would amount to $1,800 a month at the present price of about 25 cents a gallon for pure benzol and toluol.

If the works are not equipped for stripping but have to maintain a certain standard of candlepower or heat value at any outlying station, the enriching value of this amount of benzol and toluol (whose vapor tensions are high enough to make us consider them our best enriching oils), adding to the gas 0.0241 gal. per thousand of pure oils, has been found in practice to be equivalent to about 5 B.t.u. per cubic foot of finished gas and 1 candlepower per cubic foot, although the theoretical figures are slightly under these, based upon 140,000 B.t.u. per gallon of oil for heat value, or 40,000 candle-feet per gallon for candlepower.

What It Amounts to in Dollars and Cents

To those of us who are operating under a heat value basis of 565 B.t.u., a difference of 4 or 5 B.t.u. does not seem to be of very great moment, unless we stop to analyze the cost of producing those 5 B.t.u. removed from the gas by the tar at the one works in excess of the other. Assuming that the blue water gas has a heating value of 310 B.t.u. per cubic foot and that there is eight-tenths of a cubic foot of blue water gas in each cubic foot of carbureted water gas of 565 B.t.u. heat value, then the amount supplied by the blue gas would be eight-tenths of 310, or 248 B.t.u., and the balance, or 317 B.t.u., would have to be supplied to each cubic foot by the oil gas. If it requires 3½ gal. of gas oil per thousand to carburet this gas, then $3.5 \times 1{,}000 \div 317$ would represent the amount of gas oil required for each million feet of gas per B.t.u., or 11.35 gal.

Assuming the price of gas oil at 6 cents per gallon, the cost of producing 5 B.t.u. per million feet of gas would be about $3.50. For a plant producing 10,000,000 cu. ft. per day, the cost of replacing the 5 B.t.u. removed from the gas by the tar would amount to over $1,000 per month I merely wish to illustrate by these figures how the different methods of cooling the gas may make a considerable difference in the comparative operating efficiencies of two different gas works over a period of time.

The problem now devolves into an economic one, whether the increased operating efficiency and resultant saving of gas oil or increased production of light oil will offset the added cost of installation of the hot scrubbers necessary to effect the saving. In conclusion, I wish to draw your attention to the evident fact that it would not be entirely just to the man in charge of a works without hot scrubbers to expect him to produce as good a grade of finished gas as cheaply as can be produced at a plant provided with scrubbers, all other conditions of raw material and labor being equal.

In Manufacture of Car Wheels Gas Cuts Time of Operation in Two

Gas as the fuel in place of soft coal is effecting marked results in the saving of time and in the improvement of the product in the manufacture of solid car wheels at a plant connected to the service of the Public Service Company of Northern Illinois. In the fabrication of a "one-piece" iron wheel—an operation performed in only two or three industrial establishments—the methods involve preheating of a blank which when it has attained the requisite temperature is pressed and rolled into the necessary shape. The furnace used ordinarily is a very large one, and in it a coal fire is kept alive constantly. About an hour and a half before the blank is placed in the furnace the fire is freshened and the degree of heat increased.

With the substitution of city gas fuel a new furnace 6 ft. square—or less than half the size of the old one—was installed. The consumption of gas is about 2,000 ft. an hour. In distinction to the former delay as mentioned above, gas fuel in this furnace creates a temperature of 2,000 deg. Fahr. in thirty minutes. The gain in speed thus resulting is sufficient to enable twice as much work to be done. This increased product is all of it likewise of a better quality, being uniformly heated throughout. The blank treated in a coal-fired furnace develops hard spots, in handling which the dies suffered considerably.

A number of artificial ice machines operated by gas are served from the company's mains. Recently, however, one larger than the rest has been installed in a town in the western division. Its daily capacity will equal 1,000 lb. of ice. In gas-making ice machines of the modern type, as is well known, there is no compressor. In operation, the ammonia, after use, is absorbed in water, which is conveyed to a convenient receptacle where the ammonia is vaporized off, then condensed and used again in its fluid form. The establishment in which the machine is placed now uses gas for cooking and other purposes. About 1,400 cu. ft. will be burned in turning out 1,000 lb. of ice. It is estimated the machine will increase consumption 500,000 cu. ft. monthly.

Large industrial establishments, gas customers of the company, continue to increase their consumption of the fuel. One concern now operating twelve core ovens with fuel gas is erecting four more. The core oven, which is required by the traditions of the trades in which it is used to be heated by coke or other common fuels, was one of the first heavy industrial appliances to be adapted to fuel gas. But the date of such adaptation is removed scarcely two years back.—*Public Service Lumen.*

Gas Industry Has Advanced a Generation Within the Past Five Years

C. D. Shaul Looks to the Utilization of Local Coals Hitherto Considered Unavailable for Gas Making Purposes

Although five years of bloody war have come and gone, two of which caused the American hearts to throb with patriotism for the love of right, which is the basic metal of this glorious republic, the gas interests have advanced a score of years. It took something like this great war to wake up the gas engineers and chemists to the development of the by-product end of the gas industry, declared C. D. Shaul in his presidential address before the Indiana Gas Association.

To-day America makes her own dyes, fertilizers and chemicals from coal tars which previously sold at 2 cents per gallon, and her high explosives from light oil with which we formerly greased the gas to give candlepower; and even now we are furnishing a high grade of motor fuel with 20 to 25 per cent more efficiency than gasoline.

The valuable contribution of the gas fraternity in this trying era possesses an influence which shall extend onward with the march of time, lightening the burdens of future generations, and the constant change ever occurring to man and his works has found the gas industry at all stages keeping pace with the busy world of progress and science.

Better Jobs for the Soldiers

Too much cannot be said in commending our efforts to improve the condition of our co-laborers and through them to impress the world at large of the folly of Bolshevism and radical leaders who make their livelihood through the misdirection of workingmen. We should see that all our soldiers upon their return are offered their old or even better positions, for these boys, aided by the forces of right and justice, brought the world war to a hasty end. The problems it has created will soon be solved; the future will bring to all of us adequate compensation for sacrifices made in the greatest cause humanity has ever known.

The war taught us how to produce; never was as much production created when the strong and skilled men were engaged in destruction. This was possible because we cut out some of the waste and used our strength intelligently; we gathered up the fragments, lived the gospel of the clean plate, patched our clothes and swept up attics and basements for useful junk. Competition and duplicate service were abolished. The range and appliance manufacturers reduced the number of their rival models to a minimum. Previous we gave no serious thought to carbonizing Indiana coal, scorned the Indiana mine operators who tried to sell their coal for producing gas, but during the war we begged them for it.

Gas from So-called Inferior Coals

I firmly believe that future gas in Indiana will have to be produced from far inferior coals, as not only the good coals are being absorbed by the railroads but freight rates have and are making the expense too great. To carbonize the inferior coals into a better marketable coke, small unit ovens, of which some installations have been made in the State the past two years, are proving fairly successful; although not perfect they are on the right road.

Much has been said of industrial gas; more will be said in the future. We have but scratched the surface and the industrial consumer who had taken on gas as a war emergency is now convinced of its superiority in his industry and does not figure his fuels on a heating value basis, but figures service, increased production and the solving of his labor problems. There remain to-day large industrial centers which use crude fuel where the use of manufactured gas is practically unknown. These, with the high-price level of future fuels, together with the inferior grade offered, give us exceedingly large possibilities and is the most advantageous business that gas companies can turn their attention to at this period.

Going After New Business

We must not neglect our new-business activities, and this department should be reconstructed at once upon real merchandising principles. In connection with the industrial and commercial activities there has developed a decided sentiment in favor of a research department, and I would suggest this bureau, being of such importance, be kept before the industry until action is taken making it a reality.

In conclusion, I wish to refer to our retiring secretary, Senator Dunbar. I cannot put into print the appreciation of the worth of our secretary, nor is it necessary to allude in detail to his worthy services. He has been in the office since the organization of the association and his work speaks for itself. The able and efficient manner in which he has discharged the important and burdensome duties of the position, his unfailing courtesy, his regard for the interest of the individual members and his valuable services, rendered without regard to his personal conveniences or his private interest, have placed us all under lasting obligations. He has grown up with the association and grown not only in strength and physique but in our love—for who does not like "Genial Jim"?

Mortgage to Provide Funds for Construction Work

Shareholders of the Consolidated Gas, Electric Light & Power Company of Baltimore, Md., have authorized the creation of a mortgage of $100,000,000 subject to varying rates of interest and maturities. The purpose of the Mortgage is to provide funds for new construction work and to take care of present obligations at maturity. Initial issue bonds under a mortgage will be $3,500,000 at 6 per cent and running 30 years. This issue will be used as collateral, in part, for 7 per cent notes recently sold.

Use of Gas in Lithographing and Tin Plating

A Promising Market to a Great Degree as Yet Undeveloped — The One a Complement to the Other

By GILBERT C. SHADWELL

Every gas man has at least a nodding acquaintance with the lithographic business. Perhaps only a few, however, have considered its branches and the field which is open to those who want suitable industrial gas consumption.

One of the "products" of lithography is tin-plate decorating. A gas-heated soda tank is needed for ever so many spoiled sheets in order that they may be cleaned and redecorated. The operation is of the simplest nature, and the appliance (i. e., the gas-heated soda-tank furnace) is practically a standard article, and yet how many gas men have placed such a simple appliance?—to say nothing of the lacquering ovens needed. Perhaps steam is being used and the gas man just lets it go at that. But would it not pay to seek this class of business? One such equipment will often be the entering wedge for a great many more gas-consuming devices—baking, washing, drying, etc., processes which will be more fully understood and appreciated when the industry has been more completely described.

What Process Consists of

The lithographic process, pure and simple, consists of drawing or "laying down" a design or "transfer" on a specially prepared stone or other suitable surface, in such a way that an impression may be taken from it. Everybody knows that water and grease will not mix, and this fact is taken advantage of. In carrying out the work, a surface has to be secured on some substance which has an equal affinity for both grease and water. Then the parts intended to print are covered with a special composition and the rest of the surface is moistened. Hence, when the greasy roller is applied the wet portion resists the grease and that which has an affinity for grease readily accepts it. From the surface thus treated it becomes easy to secure an impression on paper and other material by merely applying suitable pressure.

Where Gas Comes In

Lithography is usually divided into two main branches—that which is drawn with a greasy crayon or "chalk" on a grained stone and that which is drawn in "ink" on a polished stone.

More recently the use of stones has diminished quite appreciably, except for the very finest work, especially in the U. S. A., and substitutes such as zinc have taken their place. But when put away for storage these plates must be thoroughly dry, as corrosion is easily set up. In some cases a room is kept "dry" by the use of steam radiators, but in reality the room is merely warmed and a deposit of moisture, however small, is likely to take place at times. In the case of large rooms, therefore, it is desirable to circulate the air by means of a blower or exhauster, and the air may be kept reasonably dry by means of a gasified air heater. Direct heat, however, should not be used, as the productions of combustion may cause trouble in course of time. However, in the case of smaller rooms an indirect atmospheric gas radiator is all that is necessary and the gas consumption need be only nominal, especially if a "coil" or "zigzagging" be arranged for the glue piping so as to give more surface for the hot glue gases to part with their heat to the room.

At first these zinc plates were quite thick and almost invariably grained by a zinc "muller" and acid; now a bath of acid is more generally used, the operation being termed "passing," while the plates are quite thin, which makes it relatively easy to bend them round the cylinders of rotary machines. Before being placed in the acid bath it is usual to wash them in a moderately caustic solution of water, which is warmed. This requires a tank furnace which can quite well be gas-heated. The object is to remove any dirt and grease. They are also washed again after leaving the acid bath.

While this is one modification of the original stone "plate," there have been numerous adaptations and modifications. For instance, the surface of the zinc is sometimes coated by oxidation and sometimes by the use of a composition in a quasi-solution. This material is somewhat akin to the original stones. This kind is used for transferred work to some extent. Iron plates treated by subjecting them to a high temperature are also used, as are zinc plates,

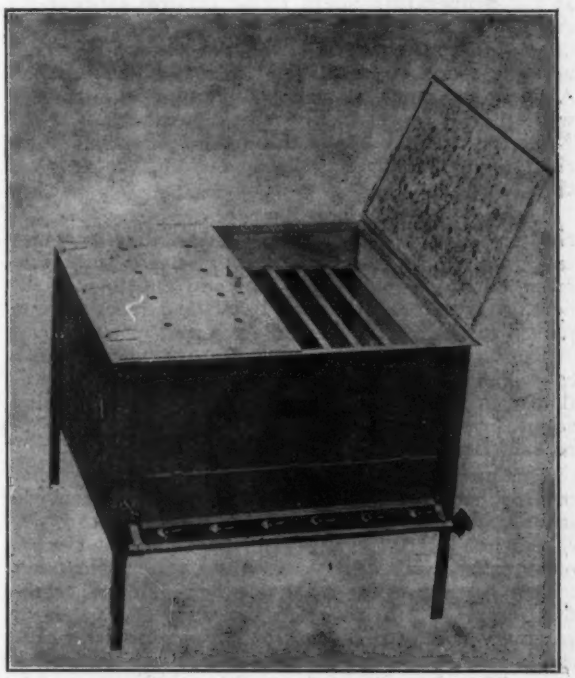


Fig. 1.

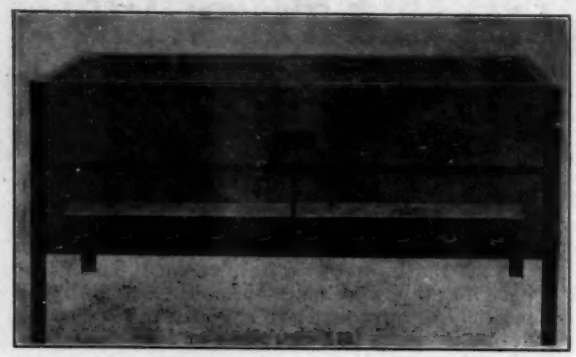


FIG. 2

which are treated to give greater porosity and to secure freedom from damage by dampness and oxidation.

The matter of stone preparation is hardly of interest to the gas man, but those who desire to go into the subject more fully may study the standard works to advantage.

IMPORTANCE OF HEATING SLOWLY

It should be mentioned that a large proportion of work is gotten onto the stone by transfer. For this purpose the stone is placed in an oven which may conveniently be of the low temperature gas-fired type, although it is quite usual to find ovens of special construction employed, such as that shown in Fig. 1. The degree of heat required is usually under 200 deg. Fahr.

It is important, however, that it be heated slowly, as the temperature ought to be uniform throughout and not (heated) on the surface only, as is sometimes done with a gas burner. Also, the surface must not be unduly hot, or it will tend to spread the "chalk." Also, by the stone being hot all through the transfer will enter it more readily and insure a longer life. After the transfer has been on the stone for a sufficient time, the paper is peeled off and the stone is then etched.

The machinery involved hardly needs any description here, consisting of presses and flat-bed or rotary machines. With the rotary machines zinc and aluminum plates are generally employed (with their modifications), although these materials are generally employed to receive the transfers referred to above.

The most important modification—at least from a commercial point of view—which has taken place is that of offset printing. It proceeds from the method adopted in tin-plate decoration, of which more will be said later.

This process consists in bringing a sheet of rubber or a rubber "blanket" into contact with the charged stone and then setting off the impression thus received upon card, paper, tin plate, cloth and a score of other materials. In other words, the rubber takes the impression off the stone or other plate and transfers it across (on itself) to the tin plate, paper or whatever it may be. Your tobacco can, bottle caps and a whole host of other things are printed in this way. The elasticity of the rubber makes it possible to print upon rough surfaces that were previously unsuited to lithographic printing. Both flat-bed and rotary machines are employed. The latter gives a very high speed of production. In both cases the finest engraved letter-heads can be printed on rough paper, and color work, which had to be confined for so long to coated papers, is now carried out in a remarkable manner on surfaces such as artists themselves use, and with which class of work almost everyone is familiar. It will pay any gas man to visit his nearest lithographic factory and see for himself the processes mentioned. Having followed this brief description, he will be enabled to secure business, it is hoped, all the easier.

So much for lithography itself. We now come to the first product of lithographing, namely:

TIN PLATE AND TIN-PLATE DECORATING

Before taking up this section of the subject it will be desirable to say a few words on tin plate itself, because although tin-plate decorators usually buy their metal sheets already tinned, yet it will help make the rest of our remarks a little clearer.

Tin plate consists of sheets of iron or steel which have been thinly coated by being passed through a molten bath of that metal.

Very occasionally terne plate is also decorated. This is a similar product except that the coating consists of about 75 to 90 per cent of lead, the rest being tin. The sheets used are called "black plates," and are now usually of Bessemer or open-hearth steel. The latter, being the better, receives a heavier coating of tin, which is also more even and homogeneous.

The tinning of the plates hardly comes within the scope of the present article, but gas-heated tinning baths are used with good results.

There are two processes for the tinning of black plates. In the "palm-oil" process, the plates, after being properly annealed, are scoured with sand and water and "pickled" in dilute sulphuric acid alternately until they are clean and bright. They are then washed in a tank (see Fig. 2) containing water which is usually hot (another use for gas), and are then boiled in a tank containing palm oil which is conveniently heated by gas (a safety device being included, as a rule, to run off the oil in case of fire and an automatic arrangement attached which closes the lid). After all traces of acid and water have been removed, the plates go to the tinning bath (often operated automatically). The molten tin is usually covered with oil to prevent oxidation and help "spread" the tin. After leaving this bath, the sheets pass to another one containing purer tin. They are then scoured and run through a third bath with even better tin. After this they are run through rollers. The baths of tin gradually deteriorate, due to the absorption of iron from the black plates, and the contents are therefore transferred down the line from first to third, the first being renewed from time to time as required.

In the "acid" process only one bath is required. The molten metal is covered with a layer of zinc chloride, which acts as a glut. Rollers pass the plates down under the tin and up through a section of the surface, which is covered with oil or other fatty matter.

The usual sizes of sheets which are decorated are about 20 by 28, although sheets as large as 30 by 36

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As the Journal Views It

Prospects for Housings Construction

Gas appliance merchandisers are vitally concerned with the prospect for housings construction. There is a considerable market, it is true, for gas appliances in existing habitations, but the bulk market remains in new housings.

The indications are that new housings construction will not be long delayed. Prospective builders have gotten over the notion that a year or so from now is going to see a marked drop in construction or labor costs.

An added factor is land values. Prices for improved property are jumping, but the unoccupied lot is still selling cheap.

With constantly augmenting volume of construction, land values will go up. It is conceivable that the man who delays buying his land and building his house, pending lower construction costs of the latter, may find any extremely doubtful saving he may secure in the building cost eaten up by the increased price he will be compelled to pay for his land.

It is hard to get over the notion that the dollar to-day is not the same dollar it was a comparatively short time ago.

But we are getting around to a rational view. Then things will liven up.

The obstacle in the way is lack of understanding and reason. This obstacle is rapidly being dissipated.

When the Gate Swings Open

It is difficult to realize, with the soldiers being disbanded by the hundred thousands, that we are still in a state of war. To practical effects we are not, but technically we are. Because this is so industry seems to be marking time.

There are indications that when peace is formally a fact the bars will be let down and business forge ahead. It would be well to keep this fact in planning policies.

The gas industry cannot afford to be caught napping. The need of new construction and enlargement is acute. We may, perhaps, be able to defer it six months or a year and still keep up. We cannot in many cases delay it longer.

Costs now are high, not as a consequeace of excessive demand but due to economic conditions that probably will not alter for a considerably longer period than we can wait.

When the gate swings open; when industries and the public start to build and construct as their needs will compel them to, there will be the added factor of the supply and demand influence on costs.

It seems logical to consider that rather than lower costs we may see, due to this factor which is not now operating, even higher costs.

The interest that builds now can at least reasonably assume that it can build at no lower cost a year from now. It may figure then it has nothing to lose from prompt action.

It may, however, gain considerable. When the deluge comes, as it inevitably must, demand is likely to exceed supply. The consequence of this is too generally known to warrant pointing out.

Those who get in early are apt to get out cheaper than those who get in with the clamor.

Reconciled to High Prices

The fear that current prices would act as a deterrent to new construction and merchandise sales has been dissipated. People are reconciled to the thought that high prices are here to stay, at least long enough to make delaying purchases, hoping for a drop on their account alone, shortsighted business policy.

Gas people are not holding back on distribution work because cast iron is high or on extensions to plant because apparatus is high. Where there is a tendency to hold back it is because they have had an opportunity to see public regulation of utilities tested from a different viewpoint.

They had seen it as a beneficent guardian of both the public and the utility weal—an impartial watchdog sitting to see that injustice was done by or to none.

The instrumentality had been tested several times in regard to its relationship to the public. It had demonstrated its ability to look after its interests—sometimes drastically.

The war put it to the test on the utility's side, and, either from the fault of unwieldly and tedious movement or from downright bigotry, it failed, with notable exceptions, to come through with creditable showing.

It is because of the uncertainty as to what they may expect in the future that some companies hesitate to try to attract capital for enlargements and expansion, not by any means on account of existing costs.

Because there seems a clearing in the skies, because the court of last resort—the general public—seems to be acquiring a sympathetic comprehension of the utility's necessities and true deserts, it would not seem to requ're a particularly wild prophet to predict a marked revival in construction in the gas field within a reasonably brief space of time.

Make Your Public Understand

The fog of confusion and misunderstanding which is to-day prevalent among business men and the general public with regard to business conditions, particularly with regard to price movements, is probably largely due to the failure to see all of the factors which make and control these conditions.

It is perfectly natural, for example, for a man to reason that the war having been the cause of the general increase in the level of prices—the war now being over—we will return immediately to the old level.

Such reasoning fails in the realization of the fact that the war created certain conditions which brought about the enormous changes we have had in the past four years, and that while the war is gone the changed conditions still hold.

The National Prosperity Campaign, which is now being given publicity through many channels, sets forth clearly many of the reasons which underlie these changed conditions and show why it is illogical to look for any early return of pre-war conditions in price levels, or in any other way.

The literature of th's campaign is certainly a valuable contribution toward the education of business and the public in the present situation, and we believe it would be a distinct gain to business if every business man would give careful attention to this literature, also republish it in whole or in part to his buying public.

This literature may be secured by addressing the National Prosperity Campaign, Commodore Hotel, New York, and the widespread republication of it by business concerns in all lines will go far toward eliminating much of the hesitation and confusion which is now so prevalent, particularly with regard to buying for the future.

The Field for Gas

"Within Greater New York, the manufactures annually exceeded in value the exports either of Great Britain or Germany," states John Hays Hammond.

And within Greater New York, gas making and supplying facilities are developed to as high a degree as any place else on earth. They were planned, furthermore, with a view to further expansion.

In a situation such as New York, it would be difficult to conceive of an industrial task, with very special exceptions, that could not, with economy and enhanced efficiency, be done with gas.

This presupposes, of course, gas at a price considerably below rates now existing and a price impossible without vast development of the by-products branch.

Given freedom from political interference and intelligent regulation, such a price is attainable by the means suggested.

The figures are for Greater New York. They apply proportionately for numerous other American localities.

Truly they give an insight into the enormous potentialities of this industry whose destiny, for some ears to come at least, rests in our hands. Will we prove equal to the trust?

Use of Gas in Lithographing and Tin Plating

(*Continued from page* 404.)

are also handled. Generally they are lacquered and baked in gas-fired ovens. After the lacquering (sometimes before) they are lithographed in the manner already described. In both cases of baking the sheets are loaded on racks mounted on rollers and baked in that way. One truck or rack is usually made to accommodate one box of tin. It measures, roughly, about 26 in. wide by 5 ft. long by 6 ft. high. The baking of the lithographing is usually done at about 125 deg. Fahr. (averaging about 140 deg. Fahr.), whereas the lacquering is done at from 200 to 300 deg. Fahr. When lacquered in a good oven at 200 deg. Fahr. it takes about half an hour to the average size box, and if carried out at 300 deg. Fahr. the time of baking may often be nearly halved.

The gas consumption capacity usually allowed is about 75 cu. ft. per truck (i. e., per box of tin), although the actual consumption is seldom above 50 cu. ft. per truck. It will, however, vary all the way from about 30 to 75 cu. ft. per truck, depending on the number of trucks to each oven compartment design of the ovens and many other factors.

When the lacquer has been baked on the metal it is practically unaffected by water, mild vegetable acids, etc., so that bottle caps are usually lacquered on the bottom first of all. The lithographed side is then treated afterward, but the sheets must receive two bakes always—one for the lacquer and one for the lithograph—independent of which operation is done first.

When delicate colors, such as whites and reds, are baked, the temperature should not be too high, and in all cases the heat should be evenly distributed and the ovens properly ventilated to get the best results.

Spring Meeting of The American Society of Mechanical Engineers

The spring meeting of the American Society of Mechanical Engineers will open at the Hotel Statler, Detroit, on Monday, June 16, and close on Thursday, June 19. The professional program comprises the following features:

Aims and Organizations to Be Discussed

Monday, June 16—Business meeting in the afternoon, followed by a general meeting at which the Society's Committee on Aims and Organization will make a preliminary report. There are representatives on this committee from the various sections of the society and seven members at large, constituting a committee of over thirty members. Several meetings have been held by this representative group in order to bring out the sentiment of engineers from different parts of the country as to what should be the controlling element in an engineer's work under present conditions, what constitutes engineering as a profession, and what are the really important functions of an engineering society in its service to engineers and the public.

Tuesday, June 17—Morning session on the subject of Research, under the auspices of the Research Committee of the A. S. M. E. Several papers and reports will be presented. This is to be made a leading subject of the meeting because of the great impetus which has been given to industrial research as a result of the conditions resulting from the war.

The afternoon session on Tuesday will be on the subject of industrial relations, with several addresses by men of national reputation. This session will constitute a symposium by leading organizers on the factors dominant in the labor situation, with an interchange of views as to what must be done to assume industrial peace.

Papers to Be Contributed by Local Sections

Wednesday, June 18—Session in charge of the Detroit Local Committee and of several other sections of the society, with technical papers contributed by members of these various sections. Also gas power session, with papers on oil engines.

Thursday, June 19—Miscellaneous technical sessions, one of which will be for the discussion of fuels, including powdered fuel and oil fuel.

The Detroit local committee is arranging many events for the entertainment of the members of the society and others who may attend. Among these will be an afternoon and evening devoted to a boat ride on the lake during which dinner will be served.

Eastern Utilities Coal Company Resumes Full Production

Change in the market conditions and in the demand for coal by other affiliated companies has made it necessary, beginning May 5, to resume full production at the mine of the Eastern Utilities Coal Company, at Lost Creek, W. Va. Under present conditions it is expected that a normal output of approximately 140 to 145 cars per month will be maintained.

Advertising Better Light

The Peoples Gas, Light & Coke Company, Chicago, in order to increase the use of mantles issued an announcement that they would give free to every consumer of gas in the city who was utterly dependent upon the flat flame burner, two junior mantle lights, and would install same free of charge. Little coupons were attached to the monthly gas bill stating this fact, and all that it was necessary to do was to detach the coupon, write one's name and address in space provided on the opsite side and send it to the gas company. It is a publicity plan well worth the trying by dealers in the smaller cities.

A Campaign for Gas Ranges

It is none too early to begin the campaign for gas ranges, for summer will be upon us almost before we are aware, and the woman who has been persuaded to buy a gas stove or range before the hot weather will act as one of your best publicity boosters to her less fortunate sisters. The advertising should be crisp, concise, informative and interesting. The human interest element should be made prominent, and stereotyped phrases cast into the discard. As a sample of modern advertising, with a pulling power, there is none better than that of the Pasadena (Cal.) Hardware Company.

AUTOMATIC GAS RANGE

"The Range that Almost Thinks."

Have you not sometimes daydreamed about a stove that would do your cooking for you, while you rested, or played, or shopped, or perhaps motored miles from home?

YOUR DREAM STOVE IS HERE

It is a handsome gas range that can be used in every respect like the usual gas range, and in addition it has a spacious automatic-retained heat-cooking oven, which will bake, roast, boil, steam or stew without any attention on your part.

It is handsomely finished in durable black enamel, with white enamel splash plates and nickel trimmings. It is easy to keep clean and bright and never needs blackening.

We can prove absolutely that it will pay for itself in food and fuel saved—to say nothing of the free time it gives the busy housewife.

PASADENA HARDWARE CO.

Can you not see how the heading would at once interest the homekeeper; and then, as women are fond of details, the concise, yet complete description of the range would make her more determined than ever to possess such a treasure.

Another up-to-date-announcement was that of Barker Bros., Los Angeles, who put it squarely up to the men folks to aid in reducing a woman's work:

A WOMAN'S WORK, GRAVE SIRS, IS NEVER DONE

The least we can do is to help make her work easier—to lighten the labor that housework involves. How often have you heard the old saying: "A man's work is from sun to sun, but woman's work is never done."

Now that summer time is coming on apace, are you going to let her swelter and perspire in that hot kitchen while cooking or washing? No, of course you are not. You are going to get her one of our

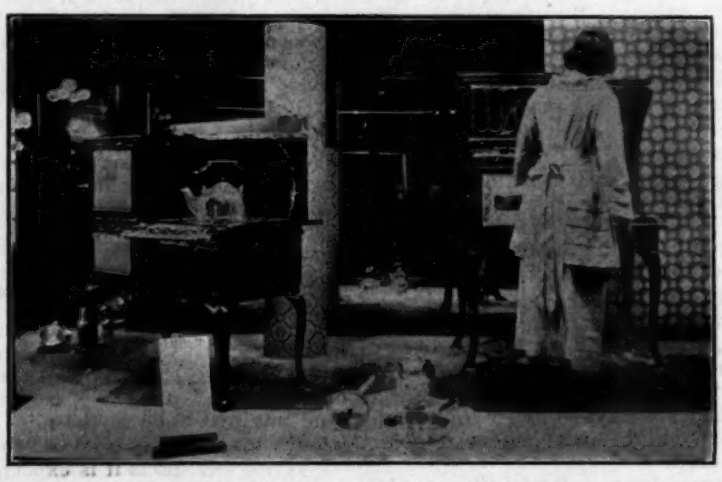
BLANK GAS RANGES

so that she can cook and do the rest of her work in comfort.

Drop in and let us talk the matter over. Bring down the good wife and let her see the convenience of the gas range demonstrated.

BARKER BROS.

Hamburger's, Los Angeles, Cal., is another firm that has recently been giving much attention to exploiting their gas ranges. A large portion of the fourth floor is given over to gas stoves and ranges, the neat and compact way in which they are arranged enabling all who visit the department to note the different types and the advantages of each, without any loss of time. Realizing that their best publicity agent is their show window, they installed therein a couple of gas ranges. The floor



ATTRACTIVE WINDOW DISPLAY AT HAMBURGER'S, LOS ANGELES

GAS STOVE DEPARTMENT AT HAMBURGER'S, LOS ANGELES

was covered with linoleum, and a kitchen table and chair transformed the room into a modern kitchen. What attracted the most attention, however, was a wax figure, in blue morning dress, who was carefully opening the door of one of the ranges. Aluminum cooking utensils were set on the ranges, and a complete set of them spread on the floor. One of the catchiest advertising cards of the season was shown in this display:

Man's work is from sun to sun, but
woman's work *was* never done
Till the *Gas Range* came beneath
her ken, and *now* she's done be-
fore the men.

The Houston Gas & Fuel Company, Houston, Texas, advocating the extension of the use of gas, had a large sign extending entirely across the top of their show window:

ALWAYS AT YOUR SERVICE
HEAT—LIGHT—COOK WITH GAS

A sanitary modern gas kitchen was arranged. The walls were white, with white curtains at the two windows in the background, and the floor was covered with tiled linoleum in blue and white blocks. At one end was a sink, with attachments for running water. In the corner was a kitchen cabinet, and in the foreground a gas range of white enamel, with nickel trimmings. By it was a card:

JUST TO REMIND YOU

Be sure to get that gas range before the strain of preparing for a house full of guests, and the demand upon time and temper is upon you. It will make your work in the kitchen so easy and pleasurable that you will be able to enjoy the festivities as much or more than those who have no part in the preparation of the dinner.

See the *Gas Range* demonstration in our window to-morrow.

During the demonstration a colored mammy, in big white apron and a red bandanna handkerchief twisted about her head, baked bread, cake, rolls, pies, etc., and samples of any or all of them were served free to visitors—hot, crisp and delicious. Even when there was no cooking demonstration going on, the gas-baked viands were set out on a table—a mute testimony of the deliciousness of food cooked with gas.

Advertising the Laundry Stove

Now that spring is lengthening into summer the housewife begins to dread the heat of wash day, and anything that will lighten her labors will receive careful consideration. Bearing this fact in mind, the National Appliance Company, Washington, D. C., recently had a display featuring the gas laundry stove. On the background was a large sun, cut from cardboard and painted a bright golden color. Across the room was hung a line full of clean clothes, and down in front was one of the time-and-space-saving stoves. A large card advised:

All outdoors calls to you these bright, cheery summer days. Forsake the basement; forget the washtub; get out of doors to-day. Your Health demands it.

'Phone us to-day and we will explain how easy it is with a

GAS LAUNDRY STOVE

to shift the cares and toil of wash day. You save health, time and money.

NATIONAL APPLIANCE CO.

Peterson Takes Charge

Plans to Find Out What Grievances of Consumers Are by Advertising for Complaints

By S. G. ADDISON

Conditions in Blankville were getting more and more desperate. The ending of the war had caused those factories that had been working exclusively on war orders to shut down. It had caused the other manufacturing plants in town to reduce their working force and their output. The consumption of industrial gas fell off to an alarming extent and the number of families moving out of town even cut into the domestic consumption to a very serious degree. Something had to be done. The only thing which promised a way out was to organize an effective commercial department. All the men available to take charge of this department had been carefully considered. No one seemed to fill the bill as well as Peterson, the man who had been discharged as a "nut."

MAKES UNREASONABLE DEMANDS

The directors felt that Peterson had made unreasonable demands. They did not feel that he should have made the request to be made a vice-president of the company. They did not like his attitude in making the granting of that request a condition of his accepting the position. For a time they had held out. As things grew worse and worse, more and more of them decided to give Peterson a trial on his own terms. These directors were good business men. They knew that unless something was done and done soon disaster would surely overtake the Blankville Gas Company. They could readily see that the only remedy was increasing the revenue through the efforts of an efficient and well-managed commercial department, but they

had never given and did not desire now to give that department the recognition that Peterson demanded for it.

Something had to be done, however, so the directors got together, talked the matter over and finally decided to make a three-year contract with Peterson, meeting his conditions with the understanding that if the revenue did not increase at a rate sufficient to yield dividends the commercial department would be disbanded at the end of the three-year period.

Peterson had only recently taken charge, and this was the first directors' meeting he had attended. After the routine business had been attended to Peterson took the floor.

Investigates Conditions and Plans for Future

"Gentlemen," he said, "I have only just returned to this company, but I have already done a good deal of investigating and planning for the future. There seems to be little chance of getting enough business from new consumers to make up for the loss that is taking place through people moving away and factories shutting down. The only hope rests with the present consumers. I have had some figures given me by the bookkeeping department on these customers. I find that they are not using nearly as much gas as they should. In fact, it seems to me as though we ought to be able to double their consumption. I am under the impression that during the past few years their needs have not been given the attention that they should have been. Apparently business has been so good that there has not been time to pay attention to old customers.

"I am quite sure that under the strain and the rush of war business the complaints made by consumers have not been given the attention that they would have been given in peace time. I fear that this state of affairs has resulted in a larger number of people having a grievance against the company than would ordinarily be the case. It may be fortunate, however, that this is the case. If all the consumers had been using all the gas they could during the past two years there would be no place now where we could look for business to increase the revenue to the extent it must be increased to meet overhead expenses.

Wants Directors to Appropriate Funds to Settle Complaints

"Among our consumers, especially the domestic consumers we have a wonderful fertile field to cultivate. To make it yield the crop it should yield, however, it must be prepared for the harvest. I am certain that this cannot be done until we discover and remedy the grievances that these consumers have against the company. My plan is to find out what these grievances are and to satisfy these consumers. After that is done they will be better friends of the gas company and consume more gas than they would have if they had never had a grievance against the company. What I want you men to do is to appropriate a sum equal to fifty cents a customer as a first appropriation for preparing the present consumers for increased consumption. I propose to use this to find and to settle complaints.

"I am going to advertise for complaints; I am going to send out letters to the consumers asking for complaints; I am going to have my salesmen solicit complaints; the main work of all the demonstrators for the next few months is going to be hunting for complaints; I am going to send out appliance inspectors who will worm out complaints from people who have not already made complaints. I am going to find out just why the people in this city do not use more gas. I have not the slightest doubt that when we know the real reason it will be the easiest thing in the world to steer our course in such a manner that we can greatly increase the consumption of all our customers.

"Gentlemen, as a member of this board of directors I make the motion that a sum equal to fifty cents per consumer be appropriated to begin the work of preparing our present consumers for a greatly increased consumption."

Directors Object to Spending Any Money

"Our revenue is already falling off. We have got to retrench. We have got to reduce expenses. We can't afford to spend any money that we can possibly avoid spending," spoke up the director who was interested in the financial end of the company.

"We have got to appropriate a very large sum of money for the present industrial conditions if we vote favorably on this motion," objected the director who represented the accounting department.

The "Old Man" then explained his position to the board in these words:

The "Old Man" Finds a Way Out

"Gentlemen, I agree that the sum looks large and that we must save all the money at this time that we can but we have brought Mr. Peterson back among us for the sole purpose of increasing our revenue. We have so far done everything that he has asked us to do. Those things cost no money. Unless we give him a fair chance, unless we back him up with the appropriations that he feels he should have he cannot make the success here that we want him to make and he wants to make.

"What he has said about preparing the present consumers for greater consumption reminds me of an old farmer who used to live near our farm up in New Hampshire when I was a boy. This farmer never wanted to spend any money. In fact he never did spend a cent more than was absolutely necessary so far as we could find out. In the springtime when the rest of the farmers were buying fertilizer to put on their land he would never buy any. He would say that all the money was going out and nothing coming in and he would raise what he could without fertilizer. In the fall after he had harvested a crop very much inferior to those of his neighbors he would say that he could not afford to buy fertilizer because the crops were bad.

"I had never looked at our position that way before, but I believe that we have been treating our consumers in exactly the same way that farmer treated his land, and wondering why we have not had better success in our business. We have not really cultivated our business. We have not done as much as we could have done to increase the business of our present consumers and, gentlemen, that is where the profit lays. We will have to go to very little expense to deliver double the amount of gas

we are now delivering to our consumers if the consumption can be spread out over the twenty-four hours, I believe. Gentlemen, I am sure that Peterson is on the right track. We have simply got to let him go ahead with his plan."

"I remember," said another director, "that some years ago we started a complaint department. If I remember correctly we mailed out a letter to each customer stating that we had opened this department and asking the customer to refer any grievance he may have to this department. If my memory serves me correctly we received so many complaints that our new department was swamped, and since that time we have considered it better policy not to try to satisfy all the people. Don't you think your idea is going to get both you and the company into a lot of trouble, Mr. Peterson?"

"If I should attempt to satisfy all the people in the city and do the whole job at once I would most certainly get myself into a lot of trouble. It would be a human impossibility to satisfactorily attend to all the complaints that would come in from consumers in any community where they had been neglected, if all the consumers were reached within a day or two as I understand they were when this company mailed out those letters you mention.

"It is not my plan, it is not my intention to try to do more than can be done well and done successfully. Until I get my force into good working order the digging up of grievances will be confined to very limited sections of the city. We will map out a certain section of the city and then we will go over that section with a fine tooth comb. Letters will be mailed to a few consumers at a time, appliance inspectors will call, the demonstrators will worm out grievances, the salesmen will spend a portion of each day on the work of soliciting complaints, and each and every customer is going to be satisfied before we get through with him and he is going to use a lot more gas than he has ever used before."

"Well," said this director, "I voted to have the complaints investigated before and it was a failure. Your plan looks better though. I know how necessary it is that the people be satisfied, because some of my neighbors keep complaining about the gas company to me. I am going to second the motion of Mr. Peterson's. I think we ought to give him a chance to show what he can do."

"The expenditure of the money in this way," said the financial man, "seems a great waste at this time and one that we can ill afford, but I know that this man will bring up another plan at our next meeting if we hold him up on this, and the new one may cost more money than this one. I can't say that I am heartily in favor of the idea, but I am going to vote for it against my better judgment."

After a little further discussion the motion was put to a vote and was carried by but a single vote.

THE OLD ROSEBUD OIL & GAS COMPANY, Wilmington, Del.—For the development and products of oil and gas; capital, $500,000.

Extensive Appliance Merchandising Campaign Being Carried on by Laclede Company

The Laclede Gas Light Company of St. Louis has inaugurated an extensive appliance merchandising campaign. The windows of the company's beautiful building, which during the war were more or less idle because of the dearth of equipment and the necessity of conserving coal and gas supplies, are now being "dressed" and redressed regularly.

The commercial department also is using "flyers" attached to the monthly gas bills to good advantage. Thus, this month's bills brought to every gas consumer in the city a flyer carrying on one side the advertisement of the Lorain oven-heat regulator and on the other a gas-mantle advertisement.

That's Our Business

Haverty's, Houston, Texas, who supply everything for the modern gas home, call the attention of the public to their line by a novel ad:

If a man loves a woman—That's his business.

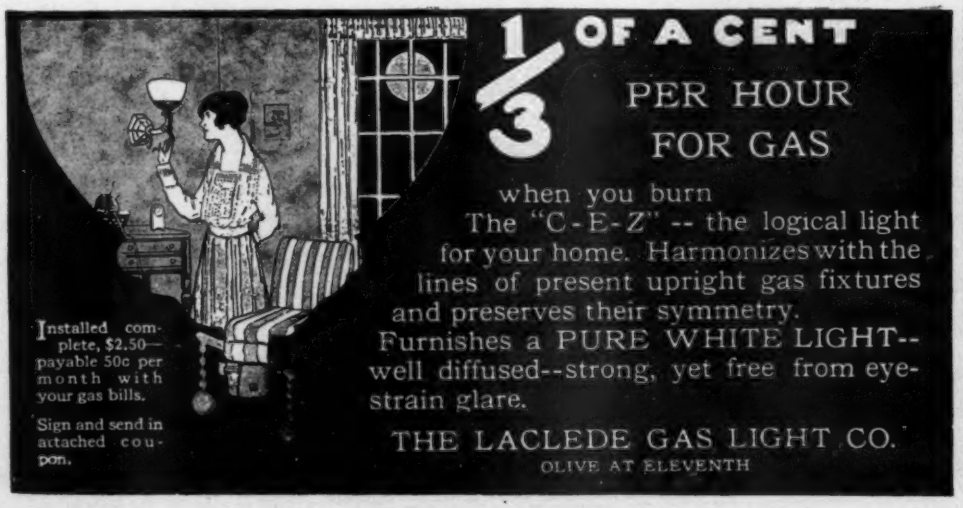
If a woman loves a man—That's her business.

If they decide to get married—That's *fine* business.

But when they decided to furnish their home—*That's our business.*

Of course it is to be a gas home—where one is rid of all the dirt and confusion of coal and wood.

We make no extravagant statements or flagrant claims, but we do aim to render helpful and responsive service. A few minutes spent in our


1/3 OF A CENT
PER HOUR
FOR GAS
when you burn
The "C-E-Z" -- the logical light for your home. Harmonizes with the lines of present upright gas fixtures and preserves their symmetry.
Furnishes a PURE WHITE LIGHT--well diffused--strong, yet free from eye-strain glare.
THE LACLEDE GAS LIGHT CO.
OLIVE AT ELEVENTH
Installed complete, $2.50—payable 50c per month with your gas bills.
Sign and send in attached coupon.
COUPON
THE LACLEDE GAS LIGHT CO.
Gentlemen: Please have installed at my address (Sign below)
St. Ave. Blvd. "C-E-Z"
Gas Light(s) for which I agree to pay $2.50 each—50c per light with my next gas bill and 50c per light per month until paid for.
Signed
DETACH
Sign and Mail to Laclede Gas Light Co., 1017 Olive Street

store will reveal to you many suggestions for the use of gas in the living room, bedroom, dining room and kitchen.

We Want Your Business
Haverty's

Foresees No Material Price Reduction on Ranges

During the years 1917 and 1918 and before the signing of the Armistice manufacturers, who came in close contact with the Government, knew there would be very little iron and steel for the manufacturer of stoves, and those who were fortunate enough to have or secure the funds for this purpose, purchased large quantities so that they might be prepared to furnish to the trade this essential commodity, declared H. D. Schall at the Indiana Gas Association convention.

Early in July, 1918, manufacturers were requested by the War Industries Board to call in all traveling salesmen during the period of the war, so that traveling expenses during 1918 were greatly reduced. Restriction in production during the same period greatly increased the overhead expense, with which the increased cost of material, labor, freight rates, etc., made the stove business for that period very unattractive.

With the beginning of 1919 it was found necessary to again materially advance labor, which with the heavy increase in distributing expenses, taxes, etc., have raised the cost of stoves at the present time to the highest known level.

During the past three months the anticipated demand for stoves has not materialized due to gas company buyers expecting a drop in prices. Merchants have been selling mostly from stocks on hand, but only in small quantities. When asked whether their own costs have been materially lowered, they frankly acknowledge that they have not, and agree there is no indication that wages will be lowered.

If the prices agreed upon between the Government and the U. S. Steel Corporation should prevail for the balance of the year, they will have little effect on the selling prices of stoves, as the reduction is too small to be of any benefit to the public, because of the advance of the more important items of cost referred to.

Conditions prevailing during the past three months are now beginning to change. Buyers are now beginning to see that prices will not be reduced to any extent and are placing orders.

Plans for extensive building throughout the country are being made. The construction of hundreds of thousands of homes is contemplated. Housing conditions in all cities of the United States are bad, and if the figures of experts can be relied upon over one million homes are needed now.

If it will not take up too much time and the chairman will permit, I should like to read an article entitled "The New Price Revolution," prepared by Irving Fisher, professor of political economy, Yale University, which covers the subject so clearly, and which will only take about ten minutes to read?

Reading of "The New Price Revolution."

It should and will no doubt be the aim of all manufacturers, and I believe will receive the support of Gas Companies—

"To increase and improve our methods of advertising.

"To utilize better and more up-to-date methods of merchandising, so that the capital turnover may be greatly increased, and the burden of cost as far as possible be removed from the public. (Merchandise may be compared to an automobile truck—unless it is kept moving the maximum earnings cannot be realized.)

"To manufacture only such new products as may be of real value to the public and to the industry."

In conclusion, the message that I would like to leave with you is not one of pessimism, but a note of confidence and a growing light of conviction that if each of us takes his part in to-morrow's possibilities, all the energies of this great nation will soon be engaged in building up what has been torn down or remained stagnant for so long a time.

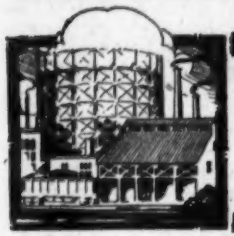
Heavy Gas Flow Tapped Near New Philadelphia, Ohio

Four million feet is believed to be the daily capacity of the fourth gas well drilled in recently at the Simerdale village field, ten miles northeast of New Philadelphia. When the gas was tapped at 780 ft., it let go with such force as to throw the casing 200 ft. above the rigging.

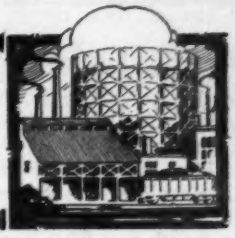
The force of the gas tore holes in the ground, causing an inrush of surface water that spurted like a geyser.

The well will be capped by the Saber Oil & Gas Company, which has another well nearby drilled a month ago.

ANNOUNCING The QUICK MEAL "MAGIC CHEF"
equipped with "Lorain" oven heat regulator
—We haven't space to enumerate all the advantages of this—the last word in cooking devices,—but when we state that with it you may place an entire meal in the oven at one time where it is all cooked perfectly without any "pot watching", every housewife will at once realize that this is
— The Gas Range Ideal —
the kitchen cooker of our dreams.
—After lighting the oven burner, simply set the temperature wheel at "very slow"—that is all.
—Then—"go out and enjoy the beautiful afternoon, dinner will be ready when you return."
—When you have decided to know more about this wonderful new gas appliance, send in the attached coupon, or stop in and see the range itself at our main office showroom, 1017 Olive Street.
THE LACLEDE GAS LIGHT COMPANY
For a limited time we will allow $5.00 for your range now in active use—the $5.00 to apply on the purchase price of a Quick Meal "Magic Chef"
COUPON
THE LACLEDE GAS LIGHT CO.
Gentlemen: Please have your representative call on me to explain fully about the Quick Meal "Magic Chef." It is understood that this does not obligate me in any way.
Signed
Address
DETACH
Sign and Mail to Laclede Gas Light Co. 1017 Olive Street



NEWS OF THE GAS INDUSTRY



Coal Dealers Will Distribute Coke of Worcester Company

At a recent meeting of the fuel section of the Chamber of Commerce in the Warren Hotel, Worcester, Mass., it was decided that in the future Worcester coal dealers will handle the coke of the Worcester Gas Light Company, thereby doing away with the duplication of distributing facilities and assuring the residents of another source and kind of fuel.

Valuation to Be Placed on San Joaquin Properties

The city trustees of Merced, Cal., recently decided to have an inventory of the properties of the gas plant and distributing system of the San Joaquin Light & Power Corporation taken while the same data is gathered with respect to the electric light system, preparatory to having a valuation placed by the railroad commission. The engineering survey for this purpose is now under way, headed by L. B. Cramer, assistant engineer of the railroad commission. The time for the hearing before the commission was scheduled at first for May, but prospects are now that it will be postponed until July.

Gas Used for Singeing Cloth

The Joseph Bancroft Sons' Company of Wilmington, Del., a large textile finishing company, had been operating for many years four machines for singeing cloth, each machine equipped with three or four copper plates. The plates were fired by oil heated to a bright lemon color. The cloth was passed rapidly over the surface of the plates and the nap and the knots were burned from the face of the cloth.

Several years ago, the Bancroft company substituted city gas for oil on one of their singeing machines, applying the gas through the Kemp Automatic Gas System, the Kemp company making such changes in the burners and in the furnace structure as was necessary to apply the gas most efficiently. The singeing machine thus equipped was operated for a number of months. As a result of this exhaustive test, the Bancroft company has put in a larger Kemp system and for some time has been heating all their singeing plates by Wilmington city gas.

The Bancroft company finds the gas service vastly superior to fuel oil, more flexible and will permit of greater output per plate per hour.

Bill Providing Oil Inspector for Illinois Cities Now Before Committee

House Bill 542 of the Illinois State legislature, which provides for the appointment of a city oil inspector in Illinois cities of 250,000 or over, is now before the committee on municipalities.

"How to Read Your Gas Meter" Cards to Be Distributed by Illinois Company

A card of instructions, "How to Read Your Gas Meter," is to be sent out in considerable numbers to the different divisions of the Public Service Company of Northern Illinois. A plan of distribution will be arranged.

The card carries pictures of three dials, each provided with a needle. Underneath the dials is an explanation in simple terms of the method to be pursued in reading the record. The card and the descriptive matter it carries are each easily comprehensible.

Blast Wrecks Gas Plant

The gas plant at Morrison, Ill., was wrecked by an explosion that shook buildings for many blocks. The report was heard for miles, and hundreds of windows were broken. Harry Shuler, at work in the plant, was blown through a window. Damage to the plant was heavy. The city will be without gas for days.

Arlington Company Conducts Prize Contest

First and Second Prize Letters—Cabinet Ranges and Water Heater Prizes

The Arlington (Mass.) Gas Light Company held a contest, closing Mar. 1, for the two best letters telling why the writers preferred gas exclusively as a year-round fuel for cooking, water heating, laundry purposes, etc. The awards were as follows:

First—Cabinet Range, value $50.
Second—Water heater, value $35.

The contest was open to present users of gas in the territory served by the Arlington Gas Light Company and the Lexington Gas Company only. The winning letters were published in the local papers.

FIRST PRIZE LETTER

Mr. Contest Manager.

Dear Sir:

I wish to submit my reasons for preferring gas as an all the year fuel for cooking and water heating in the hope that I may exchange my combination range for the gas range you so generously offer the successful contestant.

Gas appeals to me from the standpoint of economy, of cleanliness, of ease and definiteness of operation and of being immediately available. From an aesthetic standpoint, too, gas makes a strong appeal. Let me explain the aesthetic appeal.

The kitchen should be an efficient laboratory and not a social center such as is too often the case where a coal range is used. Many families invest quite heavily in living-room furnishings and use the living room only on rare occasions. Members of the family have habituated themselves to a temperature well above 72 deg. and are uncomfortable in a more temperate healthy atmosphere. An all-gas kitchen would most certainly change the social center from the kitchen to the living room and would help the family realize on its investment. I am for kitchen efficiency, and against kitchen sociability.

Statistics may be all things to all

men, and statisticians frankly say, "Tell me what you want me to prove and I'll furnish the proof." For my own satisfaction, I have tried to get comparative costs of coal and gas and have reached some conclusions. Range coal cost me twelve and a half cents a day and the gas for a period of a month cost fifty cents, making a total of $4.25 for coal and gas in one winter month. My largest summer month, using gas exclusively for laundry, for baths and for cooking, was $4.75. The reading of the month before was put down at 77 cents, and I concluded that some of the $4.75 could fairly go over to the previous month.

The average cost for gas was $2.60 for five months and we were home all summer. I did enough canning for a family of three for a period of six months. I am not taking into account any expenditure for wood in running my coal range. On the other hand, I supplemented gas with a fireless cooker.

Are you interested in vital statistics? I know I lose a fair amount of vitality every time I polish my kitchen stove. There are always splashes of black on the kitchen wall and you use both temper and energy in getting them off. I clean my stove weekly in summer and winter and I feel that it will never repay me for all my loving care. So many women blithely pass on this dirty, disagreeable job to the laundress or to friend husband, that they don't half appreciate the hatefulness of this task.

Then, too, ashes and coal dust travel through pantry and dining room and into the living room, entailing an endless round of dusting. Indeed the pantry shelves seem to have a perennial film of dust and mahogany furniture says, "Clean the decks and we'll gather more dust." A closed pantry door might help some, but with the fire at all active, the kitchen would get insufferably warm.

The utensils are cleaner and more easily cleaned when used over gas than over a reasonably well-blackened stove.

Gas is especially easy to control, and by intelligent observation you will get uniform results. An acquaintance of mine thrusts a cake into the oven and challenges it to do its "burndest," and the cake accommodates itself to her mood and comes into view a well-blackened sheet. All the blame is placed on the gas oven and she invites everyone to view the remains. She only occasionally uses the gas range, but she lauds the coal range everlastingly. I am tempted to go by opposites when she praises anything.

Gas won't do it all, but it is an efficient co-worker. It seems impossible to advertise a vacuum cleaner or a washing machine in a magazine of to-day unless the lady of the house is permitted to wear a georgette gown and high, high shoes. Neither she nor the machine she casually uses will work unless this setting is provided. A gas stove stands shoulder to shoulder with the women in gingham gowns and sturdily shares the work. Your mind and the gas stove mechanics together will accomplish much, but no honest gas stove will thrust you out to the movies and play successful solitaire.

You must use your coal range at specified times for baking, but the gas is immediately available. I have been delayed repeatedly in the past year in waiting for bread to rise, and although I have had a coal fire I have used the gas range rather than be obliged to shake down and practically rebuild the fire. It is always necessary to do this for afternoon cooking.

I have also had to use the water heater for baths and laundry purposes to heat the faintly tepid product of the coal range. I'm a bitter partisan.

Let me tell my experiences in trying to rent an apartment which was idle for six months, mainly, I think, because there was the good old coal stove asking for perpetual care. Those who would put up with coal range had very young children or very old members in the family, and they thought they needed extra warmth. Even some of these confessed that their preference would be temporary, and that they would move into an all-gas kitchen when it was expedient. Buyers and builders of real estate may be helped by my experiences.

So many people have complained of high gas bills to me that I am often tempted to seek the reason. I often find an abuse of the hot water privilege. Then, too, the recent and the frequent bills will make occasion for twelve distinct complaints against gas to only one against the coal bill. The big shock of a yearly coal bill is often forgotten, but the twelve minor shocks of gas bills boom large because they are immediate.

SECOND PRIZE LETTER

Manager Arlington Gas Light Company.

Dear Sir:

I prefer gas exclusively as a year-round fuel because I have proved that the problem of running a family, as many of us are now obliged to do, without a maid, is made easy because of the saving in time and strength, not to mention money, in using gas instead of coal. Of course there is no question of the advantage of gas appliances in the summer, but if properly managed the same can be said of their use in winter. Since a gas heater was installed nearly a year ago, I have not once used my coal range, although my kitchen is not otherwise heated. Any practical person will realize what this means in work saving.

In cold weather, when I come down in the morning, in a rush of course, I light all the burners of the gas range and also the gas heater. In one minute water from the heater runs warm and in five minutes the kitchen is warm and water is flowing hot in the bathroom for the family use, while breakfast is prepared in incredibly short time on the range, the burners being turned off and on as needed. There are no trips to the cellar for fuel and no ashes to take care of. This last means a money saving where a man is hired to carry out the ashes by the barrel. On wash day there is no hurrying up in the morning to urge on the coal fire; just touch a match to the heater and your woman will rejoice in water hotter than ever came from a kitchen range.

When through with kitchen duties there is no further care until time to light up again for the next seance, and if one is going out there is a very comfortable feeling that there is no fire in the house short of the furnace in winter and none at all in summer, a condition especially desirable where there are children.

So far as I have explained my preference for gas on the basis of using no coal at all in the kitchen, this applying to the old-fashioned kitchen without other heat, but before I banished coal altogether I found it much more economical and time saving for any sort of quick cooking to use the gas range rather than to bring up the coal fire for any short job.

As to the expense, the gas bill may seem somewhat high each month

on the face of it, but in winter, using gas for both kitchen heat and cooking the expense per month has been about that of a half ton of coal, which is a decided money saving, while in summer the amount is considerably less.

Altogether my family is enthusiastic on the subject of gas appliances, since they can now have any amount of hot water for any purpose at a few moments' notice, and as for me, I am wondering what to do with a bin full of kitchen coal laid in before being sure of the success of my experiment.

Meter Readers Will Explain Ready-to-Serve Charge

The Utah Gas & Coke Company, of Salt Lake City, Utah, in its monthly publication, *The Meter Reader*, advises consumers regarding the ready-to-serve charge, which it has been granted by the public service commission.

It also calls attention to the fact that the meter reader will visit each consumer and explain this charge.

George H. Waring is general manager of the company.

Report of Committee on Public Utilities of Chamber of Commerce of the United States

The demands being made by the street railways companies throughout the United States formed the basis of the report of the Committee on Public Utilities of the Chamber of Commerce of the United States, made public Apr. 29 at a group meeting of the seventh annual convention at the Missouri Athletic Association.

"Private industries have found a way to increase prices to meet their increased costs for wages and materials and changed conditions of credit," said the report. "Public utilities do not possess this freedom of action. This has developed a critical situation in the street railway industry."

The report was signed by the following special committee: Lewis E. Pierson, chairman; Henry C. Bradles, F. B. De Berard, P. H. Gadsden, E. K. Hall, Albert W. Harris, James S. Havens, J. W. Lieb and P. N. Myers. The committee asked that it be continued that a further investigation can be made.

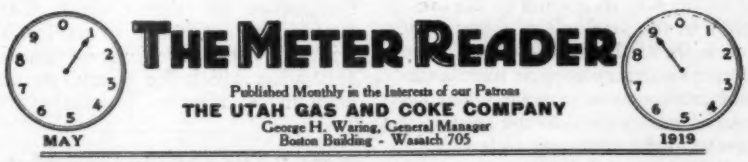
The report of the committee follows in full:

"The public utilities which you have asked this committee to study have a fundamental place in the communities of the United States. They furnish the very requisites of business activity and of community life—heat, light, industrial power, and local transportation. The dependence of our towns and cities upon these public services for all the processes of production and distribution, as well as for the activities of modern daily life, is so complete that the national welfare is at stake when a condition which threatens entire paralysis spreads throughout the units of any of these utilities.

"Such a condition inimical to the whole public now exists as to street railways. The emergency is so immediate that the committee at once makes this report with respect to street railways.

"Subject to peculiar limitations which do not apply to the same extent in the regulation of other utilities, street railways have been unable to increase their income to conform with the growth of their expenditures. Private industries have found a way to increase prices to meet their increased costs for wages and materials and changed conditions of credit. Public utilities do not possess this freedom of action. This has developed a critical situation in the street railway industry.

"This problem is common to every community in all parts of the country and therefore has become national in importance. It is a most urgent problem of the readjustment period.


THE METER READER
Published Monthly in the Interests of our Patrons
THE UTAH GAS AND COKE COMPANY
George H. Waring, General Manager
Boston Building - Wasatch 705
MAY
1919

The "Ready-to-Serve Charge"---What Is It?

"TWENTY-FIVE cent ready-to-serve charge—what is it?"

That is the question which will present itself to gas consumers this month. On the face it seems perplexing and complicated but in reality it is a very simple matter.

That it is an equitable arrangement is certain in view of the success of the plan in other states and it was the experience of other states that furnished the precedent followed by the Utah Public Utilities commission in granting this company the right to make the "ready-to-serve" charge.

Despite the most modern and efficient methods followed by this company in the manufacture of gas, coupled with rigid economy in every department, the revenue has not been sufficient to meet operating expenses. Increase in the cost of labor, materials, coal, labor and equipment has mounted to a staggering figure. Since 1914 operating expenses increased 52 per cent and net earnings have decreased 76 per cent.

Because of its recognized convenience the service of the Utah Gas & Coke company is practically indispensible to Salt Lake, and it will be generally conceded that it is impossible for a public utility to do business unless the revenue is sufficent to pay operating expenses to say nothing of an equitable dividend to its stockholders.

Herewith we are publishing an excerpt from the decision of the Public Utilities commission in granting us the right to make the "ready-to-serve" charge asked for in our petition. The decision, which follows, has been accurately and ably prepared and clearly sets forth the position of this company.

"A 'ready-to-serve' charge, as asked for in this petition would fix a minimum payment of 25 cents on each meter in use. No provision is made for the absorption of this charge in the rate, and hence it would be a flat charge against every user, whether much or little or no gas is consumed during the time the meter is connected. In approving the practice of establishing this charge, this commission is following precedents of various regulatory commissions throughout the United States.

"The Missouri Public Service commission, in the Sedalia gas rate case, approved the "ready-to-serve" charge principle in preference to the minimum charge, in the following language:

"In fixing the form of rate schedule, we have approved the company's suggestion of a service charge in lieu of the more common minimum charge. We believe that it is the more equitable in that it more nearly assigns to each consumer the costs actually incurred by that consumer. If a consumer is living in a house adjacent to a street containing a gas main, he costs the company nothing until he becomes a consumer. As soon, however, as he elects to use the gas, the company is put to an additional expense, regardless of whether the consumer uses any gas. A meter is installed. It is read every month, the bills are made out, collections are made, the meter and service pipe are kept in repair, in addition to the interest and depreciation on these items. There are also some gratuitous services and inspections for which no charges are made. While we have not computed the exact costs of this personal service in this case, the items are well known generally, and have been estimated by the company at 50 cents per meter. This is not excessive.

"The minimum charge is

Pleased to Meet You!

How do you do, Folks! I am the Meter Reader.

And I am going to visit you every month—in fact the man who reads your gas meter is going to bring me along with him, and leave me to entertain you awhile—that is, just so long as you'll keep me, each trip.

And, confidentially, I advise you to keep me for a few days, at least—for I will bring some mighty interesting news for you who use gas and want to get the maximum of service from your equipment.

I'm not going to be funny or bother you with a lot of "small talk"—but I will have a serious, worth while message or two every month that will surely interest you.

How do you do, Folks! I am the Meter Reader.

The danger increases day by day. In March 10 per cent of the mileage of the street railways of the country was in the hand of receivers. By the middle of April the proportion had already increased to 12½ per cent. Furthermore, many companies not yet formally declared bankrupt are in fact insolvent when gauged by any ordinary business standard.

"Wholly apart from the interests of street railway companies themselves, such a situation threatens disaster to every community. It means that a public service around which homes and industries have been built lacks means to provide the service which these communities require for their daily life. It means, too, that employers of a large body of workers cannot without relief continue to pay an adequate wage in a period of great increase in the cost of living. It means also that some of the largest users of the products of manufacture are without the ability to make purchases necessary to their maintenance and extension at a time when such purchases are vital to the resumption of our manufacturing industries.

"To your committee it appears that the time had come for a thorough examination of the functions of street railways, of the relations street railways bear to the public, and of the measures which should be adopted to guarantee the public an adequate service. An entire reconsideration is needed. In such a re-examination it may appear that a remedy is not to be found merely in an increase in fare, but that there may be other ways of reaching a solution of the problem.

"Whatever the causes leading up to present conditions, the remedy can now be found only if there is a widespread knowledge respecting the proper relations between street railways and the communities they are called to serve. At present there is no such general information and understanding of these problems which affect the daily life of every citizen, whether he be an employer or an employee, a merchant or a manufacturer, a city resident or a dweller in a suburban home.

"Upon considering the importance of this subject, and ascertaining the circumstances which we have attempted to suggest briefly in outline, we have concluded to present to you three recommendations in contemplation of the immediate action which is necessitated by the emergency:

"1. This committee should be continued and authorized to hold hearings at which it may invite information and suggestions from persons representing different interests and diverse points of view and who can contribute toward solution of the problem.

"2. After holding hearings and completing studies as expeditiously as possible, this committee should be authorized to present to the Board of Directors a report setting out recommendations with respect to the principles which should be adopted in undertaking to solve the street railway problem; this report might then serve as the basis for a referendum vote among all the organizations in the membership of the Chamber of Commerce of the United States.

"3. Meanwhile, organizations in the membership of the Chamber of Commerce of the United States should be requested to co-operate with this committee in developing information which the committee may need in reaching its conclusions."

New "Time-Study" of Motor Truck Operation

A complete record of the operation of a motor truck is made possible by means of a special dial or circular chart now being produced by the Service Recorder Company, of Cleveland, Ohio. This chart is printed much like the face of a clock, except that instead of twelve hours, a twenty-four hour day is represented.

The accompanying sketch gives a reduced reproduction of this chart, and also shows how the modern truck owner makes use of the information it gives him in keeping tab on all the movements of his motor truck from morning till night.

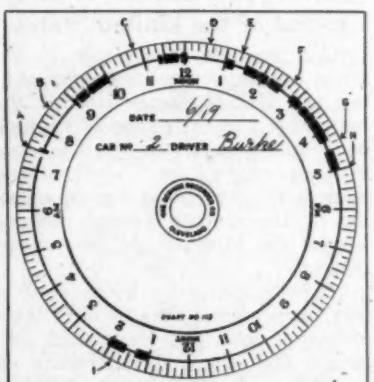
The chart is unique in that no pen or pencil is required to mark it. The chart paper is dark blue in color but is covered with an opaque wax coating. Merely scratching this chart with any sharp object removes the wax, revealing the dark color of which the paper stock is composed. In actual service, a sapphire-pointed stylus is used to scratch this "travel path."

When put in the recorder the chart is mounted on a clock movement and is constantly turned at clock speed. The sapphire stylus, however, is mounted on a separate pendulum, and swings from side to side as the vehicle moves ahead. Thus the long travel marks which you see on the chart are in reality produced by hundreds upon hundreds of "side-swings" of the sapphire stylus, which come so close together that they give the appearance of a solid mark.

The whole principle is the familiar one of side-sway in moving vehicles. Notice a person walking down the aisle of a moving street car. The car lurches from side to side, even when traveling a straight track. In the motion of a motor truck this side-sway is very pronounced. It is by "harnessing up" this force that the modern truck owner is enabled to keep as close supervision over his truck as though he rode on the truck itself.

Hearing on Sale of California Gas Plants to Be Held May 15

The California Railroad Commission has set May 15 as the date for hearing the application of the Southern Counties Gas Company for permission to buy the Santa Barbara and Ventura gas plants, and to issue bonds.



ABOVE is Daily Service Recorder Chart (size reduced). Heavy mark shows when truck is in motion; narrow line shows truck is standing still.

BELOW is the story which the truck owner read from a glance at the chart—a diary of the motor truck written by the motor truck.

A-Truck left Garage at 7.30
B-Took an hour and 25 min to load
C-Held an hour and 20 min at freight depot.
D-One hour for lunch
E-Fifteen minutes loading
F-Held up 20 min at 10th St. bridge
G-Stopped 15 min on return trip
H-Truck put up at garage at 5.00
I-Truck taken out during the night.

This motor truck wrote its own history of the day's work! No longer does the truck operator have to guess at what his truck is doing. Modern science has provided him with a mechanically accurate means of knowing just what his truck is doing every minute of the day and night.

Plan Complaint Department for Chicago

The establishment of a city-wide complaint department in Chicago to make possible the criticism of public service is being planned by Commissioner William H. Reid. With the view of making more convenient the expression of the wants of the Chicagoans, the commissioner is contemplating the use of the thirty-five ward offices for the various public utility bureaus.

"Although I have not completed my plan of organization, I expect to make some important changes in the near future," said Commissioner Reid. "A larger force is needed for the gas bureau, for one thing. I am making a careful study of the conditions in each of the public utilities, and expect to give Chicago real public service."

Construction Notes

Rome Company Doubles Capacity

Equipment doubling the capacity of the Rome (Ga.) Municipal Gas Company has been installed and was put into operation recently. F. J. Cahill, manager of the company, states that this improvement will enable the company at all times to furnish consumers with a sufficient supply of gas.

Grinnell Company Installing New Compressor

The Peoples Light & Fuel Company, of Grinnell, Ia., are installing a gas compressor in their plant. The foundation has been laid and the work of erecting the machinery is going on in full force.

Modesto Company to Award Contract for $65,000 Worth of Extensions

Estimates are being received by the Modesto (Cal.) Gas Company for $65,000 worth of betterment and extensions, according to President Frank A. Cressey. There will be a new 300,000 cu. ft. gas holder or tank, making three in all. A new generating gas apparatus unit will be added with a 25,000 cu. ft. capacity per hour. And two new gas purifiers with 25,000 cu. ft. capacity each will be installed. Extension of mains to cover the newly built section of the city will be laid next spring. Contracts for the plant betterments will be awarded within sixty days, according to President Cressey. The company's business has doubled in two and a half years. It plans to double its plant capacity as a result.

Franchise to Lay Mains Granted Southern California Company

The supervisors of Riverside and San Bernardino counties, California, having granted to the Southern California Gas Company franchises to lay mains for the distribution of gas throughout the counties, the railroad commission has granted to the gas company certificates which will enable the company to exercise the rights granted under the franchises, the life of which has been fixed at 50 years. The company has agreed not to invade territory served by any other company, and has filed a stipulation declaring that the Riverside franchise had cost $260 and the San Bernardino franchise $275.

Contemplate Expenditure of $70,000,000 in Extending Public Utility Properties

That the expenditure of $70,000,000 in extending the properties of public utility corporations of Illinois is contemplated, was recently revealed by the Illinois committee on public utilities in a statement calling for "fair play" in the industry. The statement is one of the first to be issued by the newly organized committee, which represents the Illinois Gas Association, the Illinois State Electric Association and other public utility organizations, and is attracting wide notice.

"Lack of a scientific public plan for dealing with public utilities in the State is one of the principal reasons for the present 'hesitation' in business," says the statement.

"Few of the millions of customers of the electric, gas and railway companies know the actual situation confronting the industry upon which they are dependent for light, heat, telephone and transportation, except that they are not, in many instances, getting the service they think they are entitled to. Stripped of all prejudice and bias, the companies' difficulties are the same as those of the grocer, the butcher and other merchants.

"The companies must give not only service, but safety. Besides, they must extend their properties so that the growth of no community in the State will be retarded. The industry of Illinois, alone, will spend $70,000,000 this year in that direction, provided its credit is maintained so that it may obtain the necessary funds."

The statement goes on to say that customers must take a hand in solving the problems of the utilities, and State regulations must be free from the prejudice or popular favor of the moment, and administered in a scientific, non-political way, with cold facts as the sole basis for action.

New Coal Gas Plant in Greenville in Operation

The new coal-gas plant of the Southern Public Utilities Company, at Greenville, S. C., upon which work has been progressing for several months past, is now in operation, and the results are said to be entirely satisfactory.

The new plant has a capacity of 400,000 ft. per day, as against 160,000 ft. per day before the addition. This does not take into consideration the water-gas plant on Broad Street, the capacity of which must be added to the coal-gas plant to get the entire possible output of the company.

The three new benches at the coal-gas plant were manufactured and installed by the Parker-Russell Company, of St. Louis, and differ materially from the other portion of this plant. It is believed that the many improvements will materially aid the company in its task of furnishing an adequate supply of good gas to the people of Greenville.

Benches in Kankakee Plant Being Refilled

At the Kankakee plant of the Public Service Company of Northern Illinois three of the benches are being refilled with new retorts. There are six benches in this station. In addition to those mentioned, one was refilled recently.

The Kankakee gas station's send-out has increased. A considerable number of new houses are in course of construction in the city. All of them will be piped for gas.

Societies and Associations

THE ST. PAUL (MINN.) GAS LIGHT COMPANY recently held the monthly dance of the employees at the Hill Street warehouse of the company. It was a "hard times" dance, with everyone in costume. A "Kangaroo" court was held which was interrupted from time to time by the employees' eight-piece orchestra.

THE EAST OHIO GAS COMPANY EMPLOYEES recently held a minstrel show at the Engineers' Hall with a good attendance. The cast, orchestra, ushers and all connected with the show were employees of the gas company. The show was produced under the direction of D. F. Shea.

THE SAVINGS CLUB of the Dayton (Ohio) Gas Company recently held a meeting at which the following officers were elected: C. D. Batdorf, president; Edward Light, vice-president, and J. R. Lehman, T. C. Cramer and J. W. Arthur, who, along with Mr. Batdorf and Mr. Light, comprise the executive committee. During the course of the evening C. A. Ward delivered a talk on "Savings and Investments," while Mr. Light spoke on the same subjects. The girls of the club furnished the decorations and provided the luncheon. Three new members were taken in at the meeting.

Larger Quarters for Oak Park Meter Shop

The gas meter shop of the Public Service Company of Northern Illinois at Oak Park, which has outgrown its present quarters, is to be moved into the space formerly occupied for storage of transformers in the company's building. The growth of the gas business in the territory to which the testing and other work of this shop is devoted renders larger room for it necessary. There are two other meter shops located in other parts of the territory performing similar duty.

THE OHIO CITIES GAS COMPANY has declared a quarterly dividend of $1 a share on the common, compared with previous dividend declarations of $1.25 a share quarterly, which have been paid since July, 1917.

THE NEEDLES (CAL.) GAS & ELECTRIC COMPANY, operating in San Bernardino County, makes the following showing:

Total assets December 31	$257,607
Operating revenue	49,112
Operating expenses	49,975
Net operating revenue	$ 3,137
Gross corporate income	$ 3,137
Deductions	4,736
Net corporate loss for year	1,598
Surplus on December 31, 1917	13,180
Surplus on December 31, 1918	11,582

THE CENTRAL COUNTIES GAS COMPANY—the reorganized Central California Gas Company—reports for the first three months of the current year as follows.

March quarter, 1919—		
Total operating revenue		$33,182.25
Total expenses of gas plant, maintenance, etc.	$21,580.76	
Total commercial expenses	1,436.75	
Total general, miscellaneous	3,692.08	
Taxes	1,867.04	
Total expenses		$28,576.63
Surplus		$4,605.62

According to the company's statement, dated Mar. 31, 1919, the liquid assets exceed the liabilities by $13,812.27, which serves to indicate the progress which has been achieved since the company was reorganized.

THE KERSHAW COAL COMPANY, Wilmington, Del.—To acquire coal lands and develop same; capital, $50,000.

THE WEST SIDE GAS COMPANY, operating in Kern County, Cal., reports to the Railroad Commission as follows:

Total assets December 31	$255,837
Operating revenue	50,046
Operating expenses	37,922
Net operating revenue	$ 12,124
Gross corporate income	$ 12,124
Deductions	4,053
Net corporate income for year	8,069
Surplus on December 31, 1917	6,070
Surplus on December 31, 1918	14,140

THE KANSAS GAS & ELECTRIC COMPANY reports earnings for March as follows:

	1919	1918	Increase
Gross	$224,568	$170,627	$53,941
Net after tax	56,000	50,747	5,850
Sur. after chgs.	16,860	24,404	*7,544
12 mos. gross	2,295,900	1,779,026	516,883
Net after tax	749,556	511,225	238,331
Sur. after chgs.	344,911	211,777	133,134

*Deficit.

THE CONTINENTAL GAS & ELECTRIC CORPORATION showed a gain in gross earnings in 1918, but operating expenses increased, causing a decline in net. Net was $354,222, compared with $372,008 in 1917. Interest on subsidiary bonds was $20,160 and there are now outstanding $1,924,200 of collateral trust bonds and $1,200,000 of collateral trust notes. Interest on these is $168,210, making a total funded interest charge of $188,370, which is slightly more than half the earnings. There is also a floating debt of $380,843 and $72,837 of purchase money notes. It appears that total interest charges must have been earned one and two-thirds times. The collateral trust notes are secured by deposit of bonds.

THE PACIFIC GAS & ELECTRIC COMPANY has just resumed dividends on common stock at the rate of 5 per cent a year. Increasing costs compelled it to stop payments on the common after October, 1917. Numerous increases in rates were obtained last year and the report for 1918 showed net earnings of $8,375,388, compared with $7,467,637 in 1917. Interest charges were covered more than twice.

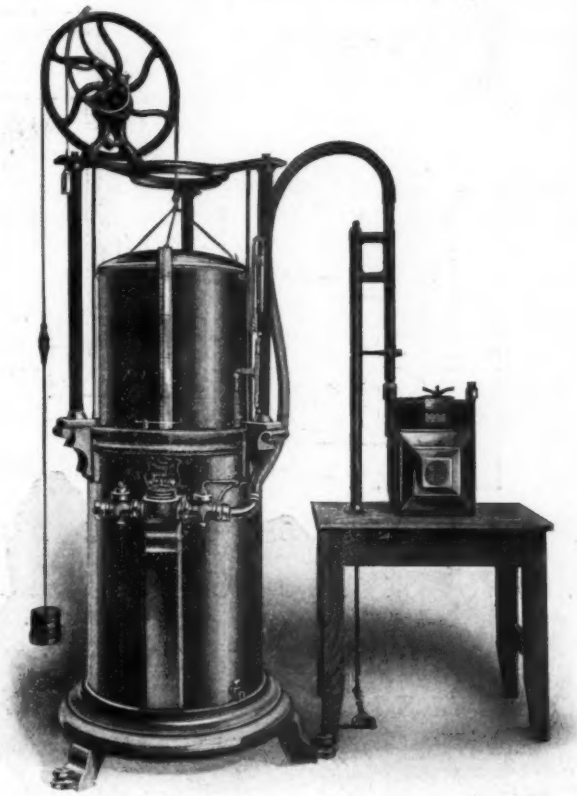
THE SANTA MARIA (CAL.) GAS & POWER COMPANY did very well in 1918, as may be gleaned from the following figures:

Operating revenue	$95,244.04
Operating expenses	79,786.71
Net operating revenue	$15,457.33
Non-operating revenue	9,434.64
Gross corporate income	$24,891.97
Interest accrued on funded debt	8,080.60
Other interest deductions	3,276.06
Total deductions	$11,356.66
Net corporate income for year	13,533.31
Surplus on December 31, 1917	70,407.79
Surplus on December 31, 1918	83,940.10

STANDARD

METER PROVERS

IN ALL SIZES



PHOTOMETERS CALORIMETERS
and EXPERIMENTAL APPARATUS
OF ALL KINDS

AMERICAN METER COMPANY

INCORPORATED

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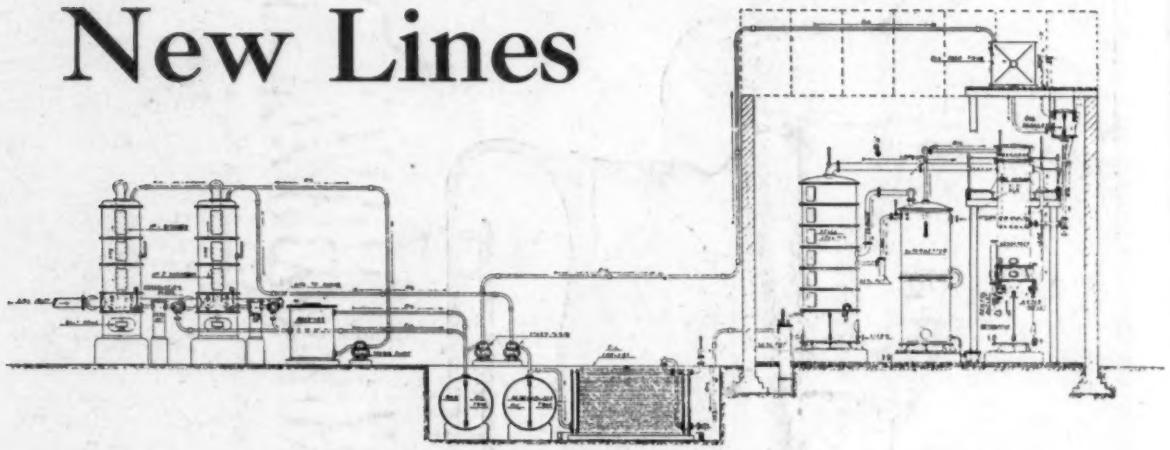
A Benzol Recovery Plant Built on Entirely New Lines



Improved Benzol Recovery Plant

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